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### SECOND PRIZE ESSAY.

*Subject:—*

“THE BEST ORGANISATION FOR THE LAND TRANSPORT OF THE BRITISH ARMY, HAVING REGARD BOTH TO HOME DEFENCE AND OVER-SEA EXPEDITIONS.”

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*“Nunquam Non Paratus.”*

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## I.—INTRODUCTION.

The best organisation for the Land Transport of the British Army must clearly be that which possesses:—

1. The highest degree of elasticity for mobilisation purposes.
2. The greatest adaptability to Home Requirements and, at the same time, to any possible theatre of operations abroad.
3. An efficient peace-service establishment, adequate, but not inordinately costly.

Other considerations must, of necessity, be taken into account, and will be touched on in this essay, but the cardinal requirements can be summed up in the three words, ELASTICITY, ADAPTABILITY, COST.

These three considerations will be treated in detail, but it will first be convenient to briefly review matters as they stand at present before passing to suggestions for the future.

In fact, without a short explanation of the existing system, and certain matters connected therewith, it would be impossible for the suggestions of any writer to be assessed at their true value.

Every word of suggestion should be based on the practical experience of where reform, or development, is needed, and if the present system of our Army transport be not clearly understood, an accurate conception of what is required in the future will certainly not be forthcoming.

A review of matters as they stand at present will involve allusion to the following points:—

- A. The Army Service Corps at Home.
- B. Regimental Transport at Home.
- C. TECHNICAL Vehicles and Technical Transport.
- D. The system of Transport according to "War Establishments, 1898."
- E. The recent Transport experiences in South Africa, 1899-1902, in so far as they affect, or have affected, our present system.

It will be attempted to bring out as clearly as possible the existing system, facts, and data at time of writing.<sup>1</sup>

## A.—THE ARMY SERVICE CORPS AT HOME.

As every student of our military system knows, the Army Service Corps is divided, so far as the warrant officers, non-commissioned officers and men are concerned, into two branches, Transport and Supply, the former being much the larger of the two.

The officers are all on one roster, and are equally available at any time for supply or transport duties, besides being liable during peace to several other forms of employment, such as the charge of barrack duties, water transport, etc., etc.

<sup>1</sup> October, 1902.

Taking the Army Estimates for 1902-1903, we find provision made for 513 officers, whilst as regards the transport branch, the numbers of those of lower rank are as follows:—

112 Warrant Officers.  
 415 Staff Sergeants and Sergeants.  
 331 Artificers (Farriers, Wheelers, Saddlers, Shoeing  
 and Carriage Smiths).  
 80 Trumpeters.  
 3,650 Rank and File.  


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 4,588 Total W.O.'s, N.C.O.'s, and men.

2,533 Horses and Mules.

The A.S.C. is organised in "companies," which are small self-contained units, somewhat resembling batteries of artillery, which account direct for their own pay, rations, clothing, equipment, animals and vehicles.

The companies are of two kinds, *depôt* companies and service companies, some of the latter being on a higher, and some on a lower establishment.<sup>1</sup>

The establishment of a *depôt* company is given in Table A., that of both forms of service company in Table B.

Hereafter the expression "a Company, A.S.C." should be taken as meaning a "service" company, as the *depôt* companies never leave their stations.

It will be seen at a glance that these companies are numerically small in men and horses, but, as the proportion of officers, warrant officers, non-commissioned officers, and artificers is high, it will be equally evident that this is so for the purpose of simplifying expansion in time of war.

Many writers have referred to these companies as "Peace cadres," and also as "Skeleton companies," both of which expressions are thoroughly justified.

The transport companies of the Army Service Corps are quartered during peace-time at the principal military stations in the United Kingdom and perform, either with or without the assistance of locally-hired transport, the various duties of the station.

During peace the transport branch of the A.S.C. does not serve outside the United Kingdom.

The drivers of the A.S.C. enlist in the first instance for 3 years with the Colours, and 9 years in the Reserve.

#### B.—REGIMENTAL TRANSPORT AT HOME.

The term "regimental transport" may be taken as meaning certain animals and vehicles handed over to a unit, and intended primarily for the permanent and exclusive use of the troops to which they are attached, the drivers being found by the unit, and not by the A.S.C.

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<sup>1</sup> At present 3 *depôt* companies and 62 service companies. There will eventually be 4 *depôt* companies and 72 service companies, 53 on the higher and 19 on the lower establishment.

A battalion of infantry at home has 1 pair of draught horses, 1 pair of pack mules or cobs, 1 general service wagon, and 1 forage cart, forming the nucleus of a transport establishment. N.C.O.'s and privates are trained in the rudiments of transport work by going through a six weeks' course in transport, riding, care of horses, etc., either with the Royal Field Artillery or the Army Service Corps.

#### C.—TECHNICAL VEHICLES AND TECHNICAL TRANSPORT.

The term "technical transport" signifies vehicles peculiar to certain branches of the Service, and on which their efficiency in the field largely depends.

The ammunition wagons of the ammunition column, the pontoon wagons, and double tool carts of Royal Engineer units are examples of this class of transport, which even the most ardent transport reformer could never desire to separate from their parent units.

Most technical vehicles are only suitable for the special purposes for which they are intended, and are, therefore, ill-adapted for general transport use. A "technical" wagon is the very opposite to a "G.S. Wagon," which, as its name implies, is intended for "general service."

Technical transport will not again be alluded to as, whatever may be the system of transport which is adopted, the technicality of these wagons and carts will remain the same.

#### D.—THE SYSTEM OF TRANSPORT ACCORDING TO "WAR ESTABLISHMENTS, 1898."

1. General remarks.
2. As affecting the Army Service Corps.

##### 1.—GENERAL REMARKS.

A few words of explanation will first be given:—

The expression "1st Line regimental transport" in Note 2, page 9 of the above volume means, that part of the transport which *must* closely accompany the unit, for instance, in the case of a battalion.

- 1 machine gun.
- 4 small-arm ammunition carts.
- 1 forage cart for tools.
- 1 Maltese cart for medical stores.
- 2 pack mules or cobs for carrying ammunition.

The wagons carrying the baggage, stores, and supplies of a battalion, form the "2nd Line regimental transport."

These need not necessarily *closely* accompany the unit.

"War Establishments, 1898," are, so far as transport is concerned, entirely based on the "regimental" system.

For instance, on page 90 will be found a summary of the transport for a battalion of 8 companies, as follows:—



## SUMMARY OF TRANSPORT FOR A BATTALION OF 8 COMPANIES.

Transport.		No. of Vehicles.	Drivers.	Draught Horses.	Packs Animal.
Machine gun and carriage	...	1	1	1	—
Carts	{ Forage, for tools	1	1	2	—
	{ Small-arm ammunition	4	4	8	—
	{ Maltese, Mark V., for medical stores	1	—	1 <sup>(k)</sup>	—
Wagons, G.S.	{ for baggage	1	2	4	—
	{ „ stores	1	2	4	—
	{ „ supplies	2	4	8	—
Cobs or mules for ammunition	...	—	2	—	2
Spare	...	—	2	4	—
Total	.. .. .	11	18	32	2

\* Led by medical officer's orderly.

In this Table there is no distinction between 1st and 2nd Line regimental transport. It should be noted, however, that both 1st and 2nd Lines come under the head of "regimental transport," and that the battalion has carrying capacity for baggage, stores, and supplies, in addition to the vehicles, etc., which govern its fighting efficiency in the field.

It is this collection of 11 vehicles, 18 drivers, 32 horses, and 2 pack animals, which may be taken as a sample of "regimental transport," as intended by "War Establishments," our chief book of guidance in the event of mobilisation.

Everyone agrees that the 1st Line should be regimental, *i.e.*, part and parcel of the battalion, but opinions differ as to whether anything beyond this should be handed over wholly and solely to the unit.

In countries where water is scarce, water-carts should be included in regimental transport.

## 2.—AS AFFECTING THE ARMY SERVICE CORPS.

Behind the "regimental" transport of units come the A.S.C. "supply columns," and, behind the latter, the supply park.

An undoubted authority on transport has left it on record that "the transport of an Army may be said to be chiefly a part, and a very important part too, of the supply machinery of a force," and as a clear idea of what is intended by "War Establishments" is essential to a proper understanding of the present system, and equally necessary for the arguments of the future, the following outline of the system is given for the purpose of showing at a glance how the feeding of an Army is intended to be carried out, and how the "supply" of a force is absolutely dependent on its sister-service.

Out of the entire transport with an Army, the supply service absorbs a very large proportion.

The carrying capacity of each link in the chain is noted against it.

## THE TRANSPORT OF FOOD AND FORAGE IN THE FIELD.

*How carried.**Quantity.*

- |                                         |                                                                                                   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------|
| <i>a.</i> In the soldier's haversack.   | Unexpended portion of current ration. <sup>1</sup> 1 emergency ration.                            |
| On the horse.                           | Unexpended portion of current forage ration. <sup>1</sup>                                         |
| <i>b.</i> In regimental baggage wagons. | 1 grocery ration (for issue on arrival in camp).                                                  |
| In regimental supply wagons.            | 1 day's complete ration for men.<br>1 day's grain for horses.                                     |
| <i>c.</i> In A.S.C. Supply Column.      | 1 day's complete ration for men.<br>1 day's grain for horses.<br>1 emergency ration for each man. |
| <i>d.</i> In A.S.C. Supply Park.        | 3 days' food for men and horses.                                                                  |

The Supply Park would carry not less than 3 days' food for men and horses, possibly more, but this would depend on the distance of the Field Army from the advanced dépôt.

The "Park" issues to the various "Columns," the "Columns" to the regimental wagons, and they to the troops.

Possibly "auxiliary" companies of the A.S.C. would be working on the lines of communication or behind the "Park."<sup>2</sup>

A most unfortunate and misleading expression found its way into "War Establishments, 1898," when the Army Service Corps companies allotted to infantry and cavalry brigades, infantry divisional troops, and army corps troops were respectively styled:—

"An infantry brigade supply column."

"A cavalry brigade supply column."

"An infantry divisional supply column."

"A corps troops supply column."

It is the term "supply column" which is so strongly objected to, especially as the previous edition of the same book ("Field Army Establishments") spoke of these units as the:—

"A.S.C. company with an infantry brigade."

"A.S.C. company with a cavalry brigade."

"A.S.C. company with divisional troops."

"A.S.C. company with corps troops."

The latter system of nomenclature ought never to have been altered.

The term "supply column" suggested to many officers a mere organisation of supply wagons, quite overlooking the fact that the "column" was an expanded "company" of the A.S.C., and was, in a sense, a small transport dépôt, which allotted a certain amount of transport to the staff of the brigade, division, or army corps, to bearer companies and field hospitals, and which possessed a considerable

<sup>1</sup> The wording on pages 8 and 9, "War Establishments 1898," "unexpended portion of previous day's ration" is incorrect. This should read "unexpended portion of day's ration previously issued."

<sup>2</sup> *Vide* "War Establishments," p. 104.

number of farriers, shoeing and carriage smiths, collarmakers and wheelers, who were intended to perform the *whole* of the shoeing and artificers' repairs to harness, saddlery, and vehicles, not only of their own column or company, but also those of the entire regimental transport in the brigade, divisional, or corps troops. The column, in fact, supplied artificers for all those units, such as infantry battalions, which had no artificers of their own.

As each supply column had a veterinary surgeon attached, it could, with its number of farriers, pay particular attention to sick or injured horses or mules.

These functions are certainly not at first sight apparent in an organisation termed "A supply column," and probably more misconception arose about the full meaning of this term than with regard to any other matter connected with our transport.

The present functions of a supply column, especially as regards the all-important artificers, will be alluded to later on, in connection with suggestions for the A.S.C. *companies*, with brigades, divisions, etc., in the future.

#### E.—THE RECENT TRANSPORT EXPERIENCES IN SOUTH AFRICA.

A volume might easily be written on this subject, but matters may be briefly summed up as follows:—

At the outbreak of the war, as soon as our forces were mobilised, the transport was organised absolutely in accordance with "War Establishments, 1898," so far as this system could be made applicable to a country like South Africa, where oxen and mules took the place of horses.

On the arrival of Lords Roberts and Kitchener in South Africa, with a large number of additional troops, early in 1900, it became necessary to re-organise the transport in order to provide for the increased requirements of the largely augmented field force.

It was urged that "regimental" transport was wasteful, as a unit had a considerable body of transport allotted to it, whether it was on stationary garrison duty or on the move.

It has already been explained that "regimental" transport comprised both 1st and 2nd Lines.

The 1st Line was left with the unit, but the whole of the 2nd Line vehicles, and also the specially provided ox wagons for carrying tents, were gathered into ox and mule transport companies, which were all made up to one strength, viz., 100 ox wagons in an ox company and 49 mule wagons in a mule company.

From these newly-formed ox and mule companies, transport was allotted by the A.S.C. as required, but only to those units which were moving, or about to move.

Further, the A.S.C. supply columns, as such, were broken up; but in a measure the former system continued under a different name so far as all mobile troops were concerned, for whereas units at first carried 1 day's rations in their regimental supply wagons, while the A.S.C. supply column carried food for another day, under the new system units were given carrying capacity for two days' food.

Thus the equation was evolved:—

$$\left. \begin{array}{l} \text{1 day's food in Regi-} \\ \text{mental Wagons} \end{array} \right\} + \left\{ \begin{array}{l} \text{1 day's food in A.S.C.} \\ \text{Supply Column} \end{array} \right\} = \left\{ \begin{array}{l} \text{2 day's carrying capa-} \\ \text{city under the new} \\ \text{allotment direct to} \\ \text{units.} \end{array} \right.$$

The new system even became, in certain cases, an accentuation of the old, despite such matters as the abolition of the regimental transport officers and regimental transport sergeants, for some forces which were constantly on the move kept the same wagons with them month after month, and came to regard them as their own particular property, a feeling which was shared in by the conductors and native drivers, who infinitely preferred to be permanently allotted to the same units to being constantly changed from one corps, or from one force, to another.

The foregoing has amounted to a somewhat lengthy introduction, but it is hoped that the case for matters as they stand at present has been stated sufficiently clearly to be a guide for future considerations.

## II.—THE MAIN ARGUMENT.

### "REGIMENTAL" *versus* "GENERAL" (*i.e.*, A.S.C.) TRANSPORT.

The crux of the whole question of our future transport organisation can be expressed in the words, "Are we to continue the system of 'regimental' transport, as laid down in our present 'War Establishments,' or are we to group the transport in companies for general service, to be allotted as economically as possible where most urgently required?"

The latter system is undoubtedly the one for the British Army in the future.

A few arguments against the "regimental" system, both during peace time and on service, will now be given.

### A.—OBJECTIONS TO THE PRESENT "REGIMENTAL" TRANSPORT AT HOME.

In spite of the possession of a small transport establishment by a battalion, the latter is not self-supporting from a transport point of view, and its rations are usually brought to it either by the transport of the A.S.C., or by that of the various contractors for meat, bread, etc.

With the A.S.C. to bring rations to its door-step, and with the power of indenting on that Corps when any heavy transport work has to be carried out, it will not surprise anyone to hear that a battalion, except under very exceptional circumstances, cannot find legitimate *regimental* work even for one pair of horses for six days a week.

Thus it has been the custom for some considerable time past at Aldershot—to take an example from our principal military station—to employ the infantry regimental transport for four days out of six under the direct orders and detailing of the Officer Commanding A.S.C., whilst the remaining two days a week are spent in working for its unit. This is in direct obedience to Paragraph 1,435 King's Regulations, which bears on the subject.

Is the advantage gained by *partly* training a mere sprinkling of men in transport duty commensurate with the disadvantages of taking soldiers away from the ranks, having public horses indifferently looked after by men who are indifferent grooms, and by having the expense of erecting and maintaining the necessary stabling accommodation in infantry barracks?

In home manœuvres it has not been customary to expand the battalion transport, indeed the nucleus is too small to admit of this, and, consequently, transport is provided entirely by the A.S.C., or by contractors working under that Corps' supervision.

This repudiation of the regimental system in our mimic warfare appears of itself a fairly strong argument against its continuance.

At least one cold-shoer is supposed to be included in the battalion transport establishment, but these cold-shoers are usually very indifferent tradesmen from want of practice, and because they become accustomed to rely on the farriers of the mounted units, who, in all large stations, are made to supervise the shoeing of regimental transport horses.

IN THEORY, the cold-shoer of the battalion takes the horse and a set of shoes to the forge of the nearest mounted unit, and puts the shoes on under the supervision of the farriers of that unit.

IN PRACTICE the shoes are invariably put on by the A.S.C. or other farrier, who, being responsible to the veterinary surgeon for the way the shoeing is performed, finds it easier to do the work himself than supervise a man, over whom he has no real hold, who does not know his work.

Battalion cold-shoers are paid 6d. per horse per month, and, with four<sup>1</sup> animals to look after, this only means two shillings a month, a sum hardly sufficient to encourage diligence at a trade.

A good many Army Veterinary officers could be found to bear testimony to the class of work done by the average infantry cold-shoer. Some of these men literally do not know a fore from a hind shoe; they have been known to bring horse-nails for shoeing small mules, and a large-sized draught shoe to put on a riding horse.

It is contended that to foster in the Army, under the name of cold-shoers, a class of tradesmen as has been described above is a positive danger to the Service.

A bad cold-shoer is almost worse than none.

The efficiency of the transport so largely depends on the shoeing of the animals that this point need not be laboured.

#### B.—OBJECTIONS TO "REGIMENTAL" TRANSPORT ON SERVICE.

First let it be clearly understood that 1st Line transport must always remain "regimental," and should at all times be carefully kept up to its proper establishment, so as to enable its unit at any time, and at the shortest notice, to take the field.

The case of 2nd Line regimental transport is entirely different.

The carrying capacity required by any unit for supplies, stores, and baggage, will largely depend on such variable circumstances as the particular employment of the unit, whether it is mobile or stationary, whether it is a mounted or dismounted body, whether it is operating close to, or far away from, its base, etc., etc., in fact on an endless number of conditions, which no regulations could foresee, and which could be much better met by granting transport in accordance with the requirements of each particular case.

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<sup>1</sup> Until recently there were *five* animals, viz., 1 riding horse, 1 pair draught horses, 1 pair pack animals. A battalion is no longer allowed a riding horse.

As it will always be prudent in the first instance to issue transport with a sparing hand, let us only give to units, as their right, what is absolutely necessary, and then afterwards allot carrying capacity as circumstances demand.

This is, in fact, the argument which led to the re-organisation of the transport in South Africa.

Another point deserves consideration. The "War Establishments" system is well enough when the troops, from generals downwards, understand where regimental transport ends and where the supply column and supply park begin, when they properly comprehend the relationship, for instance as regards artificers, between the supply column and the regimental transport of the brigade, and have a clear idea of the "supply column" system in all its details.

Where, however, this knowledge is incomplete, the system is at once condemned for the reason that the troops do not understand it. A system which possibly may not be understood can surely not find many advocates.

The case then against "regimental" transport on service is as follows:—

1. It was found so far wanting in South Africa as to necessitate re-organisation, chiefly because under certain circumstances it was "wasteful."
2. The supply column "system," of which "regimental" transport forms part, was not clearly understood by the troops in all its details, nor is it clearly discernible by merely reading our "War Establishments."

It may also be urged that if we support a comparatively expensive transport service in peace time, the onus of responsibility, as far as possible, for transport work in time of war, should be thrown on that branch of the Service which makes transport one of its specialities.

If we do not do this, the sooner we abolish our present transport service the better.

Perhaps mention should also be made of the fact that it was not always clearly understood that regimental transport became available for general duty whenever it was not actually and necessarily employed by its unit. This occasionally led to waste, although the instructions in Paragraph 1,435 King's Regulations are very clear, and although the substance of these regulations was repeated on page 13 of the pamphlet "Organisation and Details of Transport South African Field Force," which was published at Cape Town on the outbreak of the war, and issued generally to the troops.

### III.—SUGGESTIONS FOR THE FUTURE.

#### *The Suggestions Summarised.*

1. Regard 1st Line transport and all purely technical vehicles as sacred. Abolish all other "regimental" transport, but retain the regimental transport officer and transport sergeant to look after the 1st Line animals and vehicles. These are not very numerous, but they are vastly important.

2. Abolish the existing nomenclature whereby A.S.C. companies are called "supply columns"; call them "A.S.C. companies."

3. Make the war establishment of all A.S.C. transport companies, whatever their allotment, the same at the outbreak of war, that is to

say, let all companies mobilise at the same strength in officers, W.O.'s, N.C.O.'s, men, animals, and vehicles.

4. Let the Director of Transport of an army allot the various kinds of transport as may be required from time to time, and do not be afraid to transfer men, animals, and vehicles from one company to another *after* mobilisation—always retaining, if possible, a maximum and a minimum for a company.

5. Organise the transport branch of the A.S.C. as shown hereafter in detail. (See Tables C and D.)

6. Provide a larger transport reserve by altering the terms of enlistment from 3 years with the Colours and 9 in the Reserve to 2 with the Colours and 10 in the Reserve.

7. Make the A.S.C. sufficiently strong in senior officers that in the case of another war it will only be necessary, except in very special cases, to obtain the assistance of *Junior* officers from other branches of the Service.

Do not let us repeat the employment of special service officers paid at a guinea a day to work under A.S.C. captains paid at 15s. 7d.

Encourage A.S.C. officers to specialise in transport.

8. In the next edition of "War Establishments" let a clear step-by-step explanation be given of the system of transport intended, and leave no stone unturned to make every officer in the Army thoroughly acquainted with the normal system, at the same time alluding to certain possible modifications to suit varying circumstances.

9. Let some of the projected 72 service transport companies serve abroad in South Africa, Malta, Gibraltar and Egypt, so as to study "adaptability."

10. Do not let us divorce our supply and transport services, but let us agree to a "judicial separation." Let these services be ruled in the field by a director-general of supplies and transport, having under him a director of supplies and a director of transport for each army corps.

#### *The Suggestions Justified.*

I have purposely presented my suggestions in the first instance in the form of a summary: they will now be treated in detail, and it will be attempted to justify each in turn.

#### SUGGESTION No. 1.

He would, indeed, be a ruthless reformer who would want to deprive units of their 1st Line regimental transport, or of purely technical vehicles.

Both are so essential to their units that I shall assume it is conceded to let them remain inviolate.

I strongly plead for the retention of the regimental transport officer and the transport sergeant<sup>1</sup>; even if they only have their 1st Line transport to take charge of.

<sup>1</sup> Article 265 Royal Warrant for Pay, etc., allows 2s. a day to "an officer belonging to a regiment of cavalry or infantry which has been supplied with the complete equipment for regimental transport when such equipment is in actual use during active operations or mobilisation." Article 844 allows 4d. a day to the non-commissioned officers during peace, and on a war footing 1s. a day to the sergeant, 6d. a day to the shoeing-smith, 4d. to a driver in the cavalry and 6d. to a driver in the infantry.



Surely the wagons and carts conveying small-arm ammunition are sufficiently important to the fighting efficiency of the unit to deserve having someone directly responsible for the animals, the harness, the periodical greasing of wheels, etc.

Then again, the transport officer and his sergeant would be responsible for any additional transport which might from time to time be temporarily handed over by the A.S.C.

One may reasonably assume that only the most efficient and energetic officers would be chosen as transport officers, and surely these are cheaply gained at 2s. a day. Four such officers in an infantry brigade would be an immense assistance to the brigade transport officer.

#### SUGGESTION No. 2.

The term "supply column" has not always been, and is not always now, clearly understood.

The term "Army Service Corps company" is almost incapable of misconstruction. Can anyone deny the necessity for being clear and unmistakable in our mobilisation nomenclature?

#### SUGGESTION No 3.

Our present "War Establishments" give four varieties of supply column, each of varying strength, although all are mobilised out of exactly the same sized peace "cadres." Disregarding the *personnel* detached, these supply columns are as follows:—

	Officers.	Men.	Vehicles.	Horses.
A Corps Troops Supply Column ...	4	129	38	172
An Infantry Divisional Supply Column	4	82	16	84
An Infantry Brigade Supply Column	4	103	23	109
A Cavalry Brigade Supply Column ...	4	104	26	123

Could anything be much more conducive to difficulty and complications in such matters as the storage of mobilisation equipment and its subsequent issue to the units concerned?

It is contended that it would be very much simpler to mobilise every Service transport company at one strength and afterwards to transfer men, vehicles, and horses as required.

Under the present system the "supply columns" are not interchangeable. For instance, an infantry divisional supply column could not take the place of a brigade supply column without very considerable adjustment. Necessity for such interchange is quite likely to occur on the outbreak of hostilities; in fact, in South Africa, at the very commencement of the war, we had to frequently change the original allotment of supply columns.

Then again, supposing 20 supply columns had been mobilised and reported complete, it would not be apparent at first sight, as it should be, how many men, vehicles, and horses this represented as fit for the field.

In such a case the numbers could not be arrived at until it was known how many of the above 20 were corps troops supply columns, how many infantry divisional columns, how many infantry brigade



columns, and how many cavalry brigade columns, as their strengths are all different.

If the companies were all mobilised at the same strength, one simple multiplication would alone be necessary to convert any given number of companies into men, vehicles, and animals.

#### SUGGESTION No. 4.

Local circumstances, such as the physical character of a country, the existing means of communication, the food resources, the climate, the attitude of the inhabitants, and a number of other conditions, must necessarily have a direct bearing on the amount of transport essential to the various portions of a fighting force, and if we start with a preconceived intention to adapt ourselves to the dictates of these local circumstances, it is contended that our transport will be the more efficient because it will not feel that it is unduly fettered by regulations. Let us allot transport as required, and not by an absolutely fixed and universal scale.

Such an arrangement, too, would only cast on the Director of Transport a responsibility which, under the instructions of his Commander-in-Chief, he ought to be quite competent to bear.

It is well known that the "supply park" can never be a fixed quantity, and will rarely, if ever, work twice on exactly the same footing, although a fixed establishment, giving certain useful data, is very rightly given on pages 102 and 103 of our "War Establishments."

This possible variability in the "supply park" will always require adjustment, which, like other local requirements, might often be met by transferring men, vehicles, and horses from one company to another, as may be necessary.

There appears to be no objection to such a course, provided always that it is carried out *after* mobilisation, so as not to interfere with all the Service transport companies mobilising in the first instance at the same strength.

It would further be desirable to maintain, as far as possible, a maximum and a minimum for the strength of a company, not to be blindly followed, but as a useful guide to the "Director" as well as to everyone else.

If we organise our transport in this manner, and begin a campaign with the set intention of meeting the circumstances which exist, such a "re-organisation" as took place in South Africa—with all the attendant dangers of the proverbial changing of horses while crossing the stream—will never again be necessary.

Under the system suggested, whatever changes are necessary could be made, the Transport Service would be prepared to adapt itself to circumstances, and the movements of the Commander-in-Chief would not, perchance, be delayed until the transport was entirely "re-organised." A system that can be adapted to circumstances is surely preferable to one which carries with it the risk of such an upheaval as "re-organisation."

#### SUGGESTION No. 5.

"Organise the Transport Branch as shown hereafter in detail."

The organisation of the Transport Branch of the Army Service Corps will naturally dominate our transport system generally.

One leading feature in the "War Establishments" system can well be followed, in fact it would be hard to improve upon it.

The requirements of an infantry brigade are taken as the "unit of transport," just as they form the "unit of supply." This means that for each brigade of infantry, or its approximate equivalent, one transport company, A.S.C., is required.

Similarly for the sister Service, one supply officer, with a suitable staff and equipment, is allotted for the "supply" wants of the brigade.

The expression "approximate equivalent" to an infantry brigade must be taken as meaning a brigade of cavalry, infantry divisional troops, or army corps troops, thus reminding us of the four existing varieties of "supply columns" each different in numbers but identical in system.

As has been already stated, it is intended to raise 72 Service transport companies, A.S.C.

The allotment of the companies on the outbreak of war, with our present army corps organisation, would be as follows:—

To each army corps, 10 transport companies, viz.: 1 with corps troops, 3 with the divisional troops of the 3 divisions, 6 with the 6 infantry brigades. Therefore:—  
6 army corps require 60 transport companies.  
5 cavalry Brigades require 5 transport companies.  
Total, 65 transport companies.

65 out of 72 companies being required for the 6 army corps and 5 cavalry brigades, 7 transport companies remain for supply park purposes, or for employment on the lines of communication, where, in some countries, mechanical transport would also be most useful.

Two mechanical transport companies have recently been sanctioned, and it is hoped that a third may soon be added so as to allow one mechanical transport company to each of the first three army corps for supply park, or line of communication use wherever they could be most suitably employed.

On the foregoing scale an infantry division on active service would normally, and roughly speaking, require three transport companies, one for the divisional troops, and one for each Brigade.

These three companies would, for technical purposes, be under the O.C. A.S.C. of the division, who in future will occupy exactly the same position in a fighting division as the O.C. A.S.C. of a district in an army corps at home (*vide* Appendix to this essay).

The O.C. A.S.C. of a division in the field ought to have power to make such inter-divisional transport arrangements as are from time to time necessary; for instance, he should not hesitate to take away wagons and animals from the transport company with one brigade and attach them to the company with the other brigade.

He should be directly responsible to the director of transport of his army corps for all transport matters, subject always, of course, to the orders of his divisional general.

Having explained the broad basis for allotting transport companies, the next point to be considered is how these companies are to be organised.

It has already been shown how desirable it is to have all of them mobilised at the same strength, in the first instance, and it has also been urged that all but 1st Line regimental transport should be

furnished by the A.S.C., that is from transport companies of that corps.

Thus the organisation and establishment of the "company" become matters which deserve careful consideration.

Table C gives the suggested organisation for an A.S.C. transport company on a war footing, with wagons and horses.

Certain notes are added to this table which show how the figures are arrived at, and call attention to several points which are worthy of notice.

Table D shows how a company could be adapted to camel, pack-mule, or carrier transport.

#### SUGGESTION No. 6.

In order to place 6 army corps and 5 cavalry brigades on a war footing, and to provide for other contingencies, it has been calculated that some 12,000 A.S.C. drivers would be required if all but 1st Line transport is to be found for all branches of the Service by the A.S.C.

As has already been stated, the present total strength of the transport branch of the A.S.C., according to the Estimates for 1902-1903, is 4,588 warrant officers, non-commissioned officers, artificers, and drivers.

At the outbreak of the South African war the A.S.C. transport reserve stood at the comparatively small figure of 2,230, for it must be remembered that it is only since the manoeuvres of 1898<sup>1</sup> that we have seriously begun to make our transport anything like equal in numbers to what it should have been years ago.

Actuarial calculations lead us to assume that, with the present increased establishment of the transport branch, A.S.C., we may in future expect the rank and file strength to be augmented by 120 per cent. when the reserves have been called up.

For a peace strength of 3,650 rank and file this gives a reserve strength of 4,380. Total, 8,000 in round figures, of about 4,000 short of the required number of 12,000.

How are we to proceed? The reply is, keep on increasing the transport branch until at least 72 service companies have been formed, and hasten to get a larger reserve by altering the present terms of enlistment.

The existing terms of engagement for soldiers enlisting in the A.S.C. are briefly as follows:—

Original engagement, 3 years' Colour service and 9 years' Reserve service.

On completion of 6 months' Colour service, men may extend their service to 8 years with the Colours and 4 years in the Reserve (formerly 7 and 5), and at any time after 6 years' Colour service may extend to 12 years with the Colours.

<sup>1</sup> After the Salisbury manoeuvres of 1898 Field-Marshal Viscount Wolseley reported as follows:—

"Amongst the most valuable of lessons learnt I would place:—

1st. The need of considerable additions to our supply and transport establishments.

\* \* \* \* \*

3rd. The general unsuitability of civilian transport for military purposes in the first line with an army in the field etc."

After 9 years' Colour service if a sergeant, or 11 years if of lower rank, a soldier may re-engage to complete 21 years with the Colours.

If a wholesale increase to the peace strength of our transport is considered too costly, or unnecessary, we must take the only other step open to us, and increase the Reserve as rapidly as possible. This can best be done by altering the Colour service to 2 years on the original engagement, and making it easy for the man to go to the Reserve almost at any time after 2 years' service.

A very high military authority long ago made the suggestion, "Why not free trade in the Army?" This was, in fact, a plea for making it easier for the soldier to pass to the Reserve than hitherto has been allowed.

Can we not make the terms of engagement more elastic? At present an A.S.C. driver must go to the Reserve either at the end of 3 years, or wait until he has served 8 years—an interval of 5 years intervening. Could we not allow him to go at 2, 4, 6, or 8 years?

It is quite understood what delicate matters terms of engagement are to deal with, but we have this before us: more men *must* be forthcoming, and if we cannot have more men serving with the Colours we must have more where we can lay our hands on them when wanted, viz., in the Reserve.

The A.S.C. companies of Volunteer Infantry Brigades are too much in their infancy at present to be of much use to us in this matter.

Fortunately the A.S.C. is, for various reasons, popular with recruits, and rarely is there the least difficulty in obtaining as many men as are wanted. In fact, no special effort would be necessary to materially increase the number of men enlisted annually.

Under these circumstances the suggestion claims due consideration.

#### SUGGESTION No. 7.

In the first stage of the South African war, about 150 officers from other branches of the Imperial Service, from the Indian Staff Corps, and from the Colonial forces were employed with the A.S.C.

About 10 or 12 of these officers performed supply duties, and the whole of the remainder were employed in one capacity or another with the transport. This was owing to the fact that the majority of the officers of the A.S.C. proper were required for the more technical work of the "supply" administration.

Many of the officers attached for transport duty knew nothing of the organisation of the A.S.C., whilst many had had little, if any, previous experience of executive or administrative transport work.

It is quite conceded that the necessities of the case, as in former campaigns, required a large number of special service officers to be employed with the transport, but it is contended that in the future we should employ outside aid in the junior ranks only, and that we should try and avoid the employment, which took place in South Africa, of special service officers, paid at a guinea a day, as subalterns in a company commanded by an A.S.C. captain, who had all the responsibility, and in every case all the accounts, and was in receipt of fifteen shillings and sevenpence a day for his services.

To remunerate the subordinate at a higher rate than his immediate commanding officer is not conducive to contentment, and that efficiency which contentment usually begets.

It has also been suggested that it is surely a hardship for the officers who carry out the humdrum routine of peace transport work to find themselves superseded by officers of other branches of the service on the outbreak of war.

The remedy of these evils is being partly accomplished. The transport branch of the A.S.C. is being increased, the officers are more numerous than in 1899, and the new army corps system affords valuable training for the recently authorised "directors of transport."<sup>1</sup>

The general officer commanding an army corps has now under him a Director of Transport, and in each "district" it is intended to have a lieutenant-colonel commanding A.S.C., who will be responsible to the Director of Transport for the transport of his district, and in this way the senior officers of the transport service will acquire an experience of a system which it is hoped they will be able to make use of in our next war, when a lieutenant-colonel commanding A.S.C. for each infantry division, or its equivalent, will be directly responsible for the whole of the transport in the division.

Let us then make the A.S.C. sufficiently strong in senior officers and give them every opportunity of studying, as far as is possible in peace-time, the system which they must make successful in our next war.

Let us encourage our transport officers to specialise in transport work, as far as they can, in peace-time, and let us bear in mind that the newly-authorised mechanical transport section of the A.S.C. offers considerable scope for study and development.

#### SUGGESTION No. 8.

This suggestion is so simple that it does not appear to require amplification.

The "supply column" system was not understood by the Army.

When we have decided on our future system, let us see that it is understood by everyone.

That the simpler it is, the easier it will be understood, goes without saying.

#### SUGGESTION No. 9.

Like its immediate predecessor, this suggestion almost explains itself.

During peace-time the transport branch of the A.S.C. does not serve abroad. This is a mistake, for in addition to the transport companies to be left in South Africa we should station some at such places as Malta, Gibraltar, and Egypt, where they could study mules, camels, and general "adaptability" to circumstances.

This is a most valuable form of training, and, as there are to be eventually 72 service transport companies, some could easily be spared for such stations as the above.

Two-years men would not, of course, be sent abroad, but as a very large proportion of drivers extend their service, this would present no

<sup>1</sup> See Appendix I. Extract from W.O. letter of 29th September, 1902.

difficulty. The expense of moving a few companies, about 60 strong, without vehicles or animals, to and from the Mediterranean would not be very costly.

#### SUGGESTION No. 10.

As our "transport" is to a great extent part of the "supply" machinery of a force, and as the two services form the *raison d'être* for a corps of about 500 officers and 7,000 men, let us not hopelessly divorce these two branches. They have so many difficulties and so many sympathies in common that a very strong case can be entered in favour of a no more drastic reform than what I have called "judicial separation," for want of a better expression. The supply administration must so often have the first call on the transport that it is most undesirable to fix a wide gulf between them.

By all means let us break up the supply columns, as such, and let us do the same work under a different system and another name. By all means cease harping on regimental transport. By all means detail some officers *ad initio* for transport work and others for supply, but let us maintain at the head of these two great branches a man who has had practical experience of both.

Call him a director-general of supplies and transport, let him be personally answerable to the Commander-in-Chief, and let him have under him a Director of Supplies and a Director of Transport for each army corps.

In an essay on "Transport Organisation" it would be going off the line to explain how the details of supply work could be carried out in harmony with, but not as part and parcel of, the transport company. It is sufficient to indicate that such a course is quite possible.

#### IV.—THE SUGGESTIONS FOR THE FUTURE REVIEWED AS TO THEIR BEARING ON "ELASTICITY," "ADAPTABILITY," AND "COST."

In conclusion, the foregoing suggestions will be considered as regards ELASTICITY, ADAPTABILITY, and Cost, the governing conditions mentioned at the commencement of this essay.

##### ELASTICITY.

\* The skeleton transport companies of peace time, with their high proportion of officers, their warrant officers, their N.C.O.'s, and artificers, are eminently adapted for rapid expansion in the event of mobilisation. If all companies mobilised at the same strength, expansion would be much easier even than it is now.

Every officer, every warrant officer, and many non-commissioned officers of the A.S.C., have been so accustomed for many years to be constantly keeping all sorts of accounts, and drawing equipment and returning the same to the Army Ordnance Department, that the act of drawing mobilisation stores, animals, active-service clothing, sea kits, etc., etc., comes as merely a larger edition of an every-day task, and so presents fewer difficulties than are experienced in several other branches of the Service on similar occasions.

The company being the unit of organisation, a highly valuable degree of decentralisation exists, which greatly facilitates rapid expansion.



Under the New Army Corps system, one of the greatest benefits is that staffs and troops will not in future be hurriedly thrown together on the outbreak of war. Transport companies will serve abroad with the brigades, divisions, or corps troops which they have been serving in peace. Generals will know their transport officers, and their capabilities, before taking the field.

This is an immense step forward.

#### ADAPTABILITY.

The existing transport companies are well adapted to Home requirements during peace. Expansion for Home defence, using wagons and horses, with which all ranks of the A.S.C. are familiar, would present the simplest form of mobilisation, especially if all the companies mobilised at the same strength.

Most A.S.C. officers have had experience in one way or another of hired transport in the United Kingdom. If, in a case of national emergency, it were imperative to make partial use of civilian transport, this experience would be most useful, and a section of hired civilian wagons attached to each transport company would soon fall in with military methods if judiciously handled. This is the best manner in which to use hired wagons.

The training of the A.S.C., however, does not teach it to rely solely on *wheeled* transport, and the companies must be prepared to adapt themselves to pack transport and carriers.

Even if on some future expedition we had a repetition of boat transport, the companies, by leaving their animals and vehicles behind, would be as useful as any portion of our land forces could be under such circumstances.

To illustrate how simply, comparatively speaking, the various forms of transport could be adopted, Table D shows an A.S.C. company formed for camel, mule, or carrier transport.

Circumstances would always determine details, but these adaptations will serve to show what is possible.

Similarly, an equally simple conversion could always be made from one class of vehicle to another, from ox wagons to mule wagons, from mule wagons to carts, in fact, the company could be adapted to any known form of transport, the chief variation being in the number of drivers required from the reserve.

If A.S.C. drivers were not employed, the company could furnish supervision for native drivers or leaders. In such cases, instead of adding drivers from the reserve, some of the existing number could be dispensed with.

All transport calculations begin and end with "carrying capacity," and it merely becomes a question, say, of how many Ashanti carriers carrying 50<sup>1</sup> lbs. each, how many pack mules at 160 lbs. each, or how many camels at 300 lbs. each, are required to furnish the necessary "carrying capacity."<sup>2</sup>

<sup>1</sup> In the 1895 Ashanti Expedition "45 lbs. was the load fixed for each carrier but it was frequently found that 60 lbs. could be carried if the load was of a suitable size." Vide report of O.C. A.S.C. Ashanti Expedition, 1895-1896.

<sup>2</sup> Elephants have been purposely left out.

The amount of "carrying capacity" required will, of course, be chiefly governed by (1) the number of troops employed, (2) the mileage to be covered, and (3) whether the transport is self-supporting, *e.g.*, whether it has to carry its own food and forage or not.

#### COST.

It has been proved over and over again, and some of our greatest military authorities have told us in very plain language, that it is impossible to organise an efficient transport service in a hurry and on the outbreak of hostilities.

On page 7 of "Notes on Transport and on Camel Corps," by Major D. B. Burn, 1887, we find the following:—

"The Duke of Wellington, writing on the 18th June, 1816, remarks:—'It is much more easy, and there are more means and facilities to form cavalry and infantry soldiers in a hurry, than to form military drivers. If they are not regularly trained and formed, no reliance can be placed on them, and yet the most important operations of war depend frequently on the due performance of their duty by this description of corps.'"

We are bound to maintain during peace time the framework which is to undergo expansion on the declaration of war, and it behoves us to make that framework sufficiently strong, both morally and physically, to stand the strain of expansion.

It is contended that our present peace transport establishment, assuming the full 76 companies to have been formed, is no more costly than is absolutely essential for the following purposes:—

1. To prevent a dangerous "hurry-scurry," in case of war, by suddenly raising entirely raw material, and making a large number of new companies, or splitting existing companies in two, as we did in South Africa.
2. To perform the daily transport work of our large garrison towns.<sup>1</sup>
3. To train the officers, W.O.'s, and N.C.O.'s of the A.S.C. in transport work and the care of animals.

It would be obviously absurd to suggest any form of organisation for our land transport during peace which, however plausible, would entail a largely increased annual expenditure. We should rather devote our energies to perfecting our system, to strengthening the weaknesses brought to light by past experiences, and to making our

<sup>1</sup> In one of our principal military districts a wagon capable of carrying 40 cwt. with a driver and one pair of horses can at present be hired at about the following rates:—

	s.	d.
½ day, 3 hours and under ... ..	6	0
¾ day, over 3 and under 6 hours ... ..	9	0
1 day, over 6 and under 9 hours ... ..	12	6
1 day, over 9 and under 12 hours ... ..	16	0

These figures give an idea of what "Hired Transport" costs for garrison duty.



transport reserve commensurate with the demands which may possibly be made on it in case of war.

A great deal can be accomplished in this direction without blindly making unnecessary demands on the Army Estimates.

#### V.—CONCLUDING REMARKS.

The foregoing pages contain a considerable amount of detail, and side-lights, but it is urged that a subject so intricate as the organisation of the land transport of the Army cannot be properly approached without duly considering every factor in the case, however small.

Good "organisation" must always pay special regard to "details," if only for the purpose of leaving as little as possible to the interpretations which different individuals, often in various circumstances, may set on the regulations and their intentions.

It is universally acknowledged that in commercial life attention to details, and often small details at that, is one of the first principles of successful trading.

Let us therefore apply this argument to the subject under consideration, and base our proposals for the future not on some personal predilection in favour of one system or another, not on the success of a solitary experiment, or the failure of some expedient made necessary by existing circumstances, but on the solid foundation of a minute study of the subject and all that directly or indirectly concerns it.

There can be nothing which affects an army in the field more closely than the degree of efficiency and effectiveness possessed by its transport, for it is on this that the supply service will depend.

Let us then aim at being "thorough" in this all-important matter, and when we set the official seal on what we consider to be "the best organisation for the land transport," let us be certain that we have adopted a system which is, first of all, practicable within our peculiar position and varied requirements, one that is simple in its application, effective in its accomplishments, and one that possesses the confidence of the Army which must so largely depend upon it in time of war.

#### TABLES.<sup>1</sup>

- A. The establishment of a "Transport Depôt Company, A.S.C."
- B. The strength of a "service" Transport Company, A.S.C., both on the higher and lower establishment.
- C. Suggested organisation for an A.S.C. transport company on a war footing, with wagons and horses (vide suggestion No. 5).
- D. A transport company made adaptable to:—
  1. Camels.
  2. Pack mules.
  3. Carriers.
- E. Analysis of the divisibility of the various "companies" suggested.

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<sup>1</sup> It has not been thought necessary to copy the various tables in "War Establishments, 1898," which have been frequently alluded to in this essay. These can be easily consulted in their original form by anyone wishing to do so

TABLE A.

THE ESTABLISHMENT OF A TRANSPORT DEPÔT COMPANY ARMY SERVICE CORPS.

Officers.			N.C.O's and Men.									Artificers.						Horses.					
Captain.	Subaltern.	Total.	Warrant Officer.	Compy-Sergeant-Major.	Compy Q.-M.-S.	Sergeants.	Corporals.	Second Corporals.	Trumpeter.	Drivers.	Whealers.		Saddlers.		Farriers.		Total.	Officers & Warrt. Offrs.	Riding.	Draught.	Pack A	Total.	
											Staff-Sergeant.	Corporal.	Staff-Sergeant.	Corporal.	Staff-Sergeant.	Corporal.							S. and C. Smiths.
1	1	2	1	1	1	5	5	2	1	63*	1	1	1	1	1	1	2	87	3	8	50	2	63

\* 63 Drivers include 6 Lance-Corporals.

TABLE B.

THE STRENGTH OF A "SERVICE" TRANSPORT COMPANY BOTH ON THE HIGHER AND LOWER ESTABLISHMENT.

	Officers.			Warrant Officers.	N.C. Officers and Men.								Artificers.				Horses.						
	Captains.	Subaltern.	Total.		Coy. Sgt.-Maj.	Coy. Q.-M.-S.	Sergeants.	Corporals.	2nd Corporals.	Trumpeters.	Lance-Corps.	Drivers.	Whrls.		Sdlrs.		Farriers.		Total.	Officers.	Riding.	Draught.	Total.
													Staff-Sergt. or Corps.	Staff-Sergt. on Corps.	Staff-Sergt. or Corps.	S. & C. Smith.							
A Service Coy. on the higher Establishment	1	1	2	1	1	1	3	3	1	1	2	43	1	1	1	1	60	3	5	26	31		
A Service Coy. on the lower Establishment	1	—	1	1	1	2	2	1	1	2	15	1	1	1	—	29	2	3	12	17			

SUGGEST

Peace Estab-  
lishment }  
Suggested  
increase  
on Mobil-  
sation ... }

Suggested  
War  
Strength }

\* Wagons  
Carts

Add 25  
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those units in their brigade or force, which had no artificers of their own. The farriers would also most probably have to shoe the horses of staff and infantry mounted officers.

One artificer of each trade accompanies each section, and the remainder belong to company head quarters. Allowance has been made for 25 per cent. spare drivers, and 5 per cent. spare horses. It would, of course, be preferable to have a higher percentage of spare horses, but suitable draught animals are not likely to be too plentiful on mobilisation.

Four horses have been allowed for each wagon, and two for each cart.

The allotment of such a company (48 wagons) to a brigade of infantry at "War Establishments" scale, but only allowing the 1st Line vehicles to be "regimental," might be roughly as follows:—

	Wagons.
Brigade Staff .. .. .	1
4 battalions 4 each, viz., 1 for baggage, 1 for stores, and 2 for <i>one day's</i> food and forage .. .. .	16
Supply officer <i>attached</i> .. .. .	2
Field Hospital .. .. .	5
Bearer Company .. .. .	2 (instead of 4 carts)
	<hr/> 26

If tents, blankets, etc., were carried  
(see note 2, page 3 "War Establish-  
ments"), add 3 G.S. wagons per  
battalion.

For Brigade Staff .. .. .	1	} 18
For 4 battalions .. .. .	12	
For A.S.C. Company .. .. .	1	
For Bearer Company .. .. .	1	
For Field Hospital .. .. .	3	
Total .. .. .	<hr/> 44	

This means the brigade requires 26 wagons if baggage, stores, and one day's food and forage are carried, thus taking up 26 out of the 48 wagons, and leaving 22 for other purposes.

The brigade would require 18 additional wagons if tents, etc., were carried; this, added to 26, makes 44, leaving only 4 wagons over.

If the brigade had to carry two days' food, instead of one, in addition to tents, baggage and stores, about 13 wagons would be required in addition to the 44, as above. This would amount to 57 wagons, or 9 more than one company could supply. In such a case these 9 additional wagons would have to be obtained from some other transport company, or from a transport dépôt.

It will be seen that the number of drivers with each company is 138, therefore 72 service transport companies would absorb 9,936 drivers.

It has been stated in a previous page that we should require about 12,000 A.S.C. drivers if we mobilised 6 army corps and 5 cavalry

Peace Estab- lishment	}
Deduct as not re- quired ...	}
Suggested increase on Mobil- isation ...	}
Suggested War Strength	}

Camel Dr  
Load of c  
The carry  
viz., 150,000 lbs.  
One Veter

brigades. The difference between these two numbers, roughly speaking, 2,000 drivers, would be required for such purposes as the ambulances with the bearer companies of infantry and cavalry brigades, and also for supply column use, if, as might happen, a number of supply column wagons had been taken for carrying tents, blankets, etc.<sup>1</sup> If these latter articles have to be carried we should be obliged to make a corresponding increase in our total transport, so as to still enable us to carry the necessary supplies. We must be prepared, in fact, for the worst, *i.e.*, the largest demands that can possibly be made on the transport service.

All drivers and horses in excess of the 72 service transport companies should be collected in suitable places and formed into transport depôts, for it is very desirable not to interfere in the first instance with the normal 50-wagon establishment of the service transport companies, as outlined above.

To make Table C applicable to *mule* wagons, allow from 6 to 10 mules, according to size and strength, for every 4 draught horses, and if native drivers were employed, the number of A.S.C. drivers required would be very small, say 25 per cent. of full strength, or even less.

<sup>1</sup> *Vide* Note 2, page 3, "War Establishments" and the various summaries of transport with different units.

TABLE D.<sup>1</sup>

A TRANSPORT COMPANY MADE ADAPTABLE TO CAMELS.

	Officers.			Warrant Officers.	Coy.-Sergt.-Major.	Coy.-Q. M. S.	Sergeants.	Corporals.	2nd Corporals.	Lance-Corporals.	Trumpeter.	Drivers.	Farrier.	S. and C. Smith.	Saddlers.	Wheeler.	Total all Ranks(except Officers.)	Horses.					Native.	
	Captain.	Subalterns.	Total.															Officers.	N. C. O's.	Draught.	Total.	Camels.	Conductors.	Drivers.
Peace Estab- lishment	1	1	2	1	1	1	3	3	1	2	1	43	1	1	1	1	60	3	5	26	34	—	—	—
Deduct as not re- quired ...	—	—	—	—	—	—	—	—	—	—	—	27	—	—	—	—	27	—	—	26	26	—	—	—
Suggested increase on Mobil- isation ...	1	1	2	1	1	1	3	3	1	2	1	16	1	1	1	1*	33	3	5	—	8	—	—	—
Suggested War Strength	1	2	3	2	1	1	4	4	4	4	1	16	—	1	6	1	46	5	10	—	24	50	17	167

\* Wheeler retained for mending broken or damaged wooden cases containing supplies.

NOTES ON TABLE D.<sup>1</sup>

Camel Drivers assumed to be Natives, 1 allowed to every 3 camels, 1 conductor to every 10 drivers or 30 camels.

Load of camel taken at 300 lbs. in addition to weight of pack saddle.

The carrying capacity of above Company is equal to that of the Wheeled Transport Company shown in Table C, *viz.*, 150,000 lbs.

One Veterinary Officer should be attached.

TABLE D.<sup>2</sup>

## A TRANSPORT COMPANY MADE ADAPTABLE TO PACK MULES.

	Officers.			Warrant Officers.	Coy.-Sgt.-Major.	Coy.-Q.M.S.	Sergeants.	Corporals.	2nd Corporals.	Lance Corporals.	Trumpeter.	Drivers.	Farriers.	S. & C. Smiths.	Saddlers.	Wheeler.	Total all Ranks (except Officers).	Horses.				Native		
	Captain.	Subalterns.	Total.															Officers.	N.C.O's.	Drayht.	Total.	Mules.	Conductors.	Drivers.
Peace Establishment	1	1	2	1	1	1	3	3	1	2	1	43	1	1	1	1	60	3	5	26	34	—	—	—
Deduct as not required ...	—	—	—	—	—	—	—	—	—	—	—	27	—	—	—	—	27	—	—	26	26	—	—	—
Suggested increase on Mobilisation ...	1	1	2	1	1	1	3	3	1	2	1	16	1	1	1	1*	33	3	5	—	8	—	—	—
Suggested War Strength	1	4	5	4	1	1	4	4	4	4	1	16	4	6	8	1	58	9	30	—	39	800	27	267

\* Wheeler retained for mending broken or damaged wooden cases containing supplies.

NOTES ON TABLE D.<sup>2</sup>

Mule Drivers assumed to be Natives. 1 allowed to every 3 mules. 1 Conductor to every 10 drivers or 30 mules.

Load of mule taken at 160 lbs. in addition to weight of pack saddle.

The carrying capacity of above Company is 128,000 lbs.

The Company is divisible into 2 Half Companies of 400 mules, 4 sections of 200 mules, 8 half sections of 100 mules or 16 sub-sections of 50 mules.

One Veterinary Officer should be attached.

TABLE D.<sup>3</sup>

## A TRANSPORT COMPANY MADE ADAPTABLE TO CARRIERS.

	Officers.			Warrant Offrs.	Coy.-Sgt.-Major.	Coy.-Q.M.S.	Sergeants.	Corporals.	2nd Corporals.	Lance Corporals.	Trumpeter.	Drivers.	Farrier.	S. & C. Smith.	Saddler.	Wheeler.	Total all Ranks (except officers).	Conductors.	Headmen.	Carriers.
	Captain.	Subalterns.	Total.																	
Peace Establishment (omitting all horses)	1	1	2	1	1	1	3	3	1	2	1	43	1	1	1	1	60	—	—	—
Deduct as not required	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	41	—	—	—
Suggested increase on Mobilisation ...	1	1	2	1	1	1	2	2	1	2	1	6	—	—	1*	1†	19	—	—	—
Suggested War Strength	1	2	3	2	1	1	2	—	2	2	1	6	—	—	1	1	21	8	40	800

\* Saddler retained for superintending mending of burst sacks containing supplies.

† Wheeler retained for mending broken or damaged wooden cases containing supplies.

NOTES ON TABLE D.<sup>3</sup>

This Company is organised in 40 gangs, each of 20 carriers, and 1 headman.

To each 5 gangs, 1 conductor is allowed.

To each 10 gangs, 1 sergeant or corporal and 1 2nd corporal or lance-corporal.

To each 20 gangs, 1 officer and 1 warrant officer.

Assuming the carrier's load to be 50 lbs., the carrying capacity of this company is 40,000 lbs., or approximately 13 wagon loads.

TABLE E.

ANALYSIS OF THE POSSIBLE SUB-DIVISIONS OF THE SUGGESTED COMPANIES.

	Wagons (Table C).	Camels (Table D <sup>1</sup> ).	Mules (Table D <sup>2</sup> ).	Carriers (Table D <sup>3</sup> ).
Company ... ..	48	500	800	40 gangs
Half Company ... ..	24	250	400	20 gangs
Section ... ..	12	125	200	10 gangs
Half Section ... ..	6	} Further Division (uneven but quite possible)	100	5 gangs
Sub-Section ... ..	3		50	(1 gang = 20 men under a headman).

It is important to have a sound system of divisibility in proportion to the number of officers, warrant officers, non-commissioned officers and artificers available. In the case of camel and mule companies, the distribution of conductors and drivers would have to be adjusted if it were desirable for any cause to adopt the sub-divisions named. The worst it could mean would only be that a few extra conductors and drivers would be necessary.

## APPENDIX.

EXTRACTS FROM WAR OFFICE LETTER OF 29TH SEPTEMBER, 1902,  
REGARDING THE APPOINTMENT OF DIRECTORS OF SUPPLIES AND  
DIRECTORS OF TRANSPORT.

"Two colonels-on-the-staff, to be designated Director of Supplies and Director of Transport respectively, will be appointed to each of the Ist, IInd, and IIIrd Army Corps.

A colonel-on-the-staff to be designated Director of Supplies and Transport, will be appointed to the IVth, Vth, and VIth Army Corps.

These officers will be stationed at the head quarters of their respective army corps, and their duties will be of a purely staff nature, and they will have no executive command whatever.

They will take their general instructions from the chief staff officers of their respective army corps, but in any special matters relating to their duties, they will have personal access to the general officer commanding the army corps. They will be the medium of communication on subjects relating to supply, transport, and barrack services.

\* \* \* \* \*

The Director of Transport will be charged with the administration of all transport services, in the army corps area, and will be the adviser of general officers commanding on transport generally.

The administration of the supply, transport, and barrack services, of the different districts, at present performed by staff officers appointed for B staff duties, will be transferred to the officers commanding Army Service Corps, of the district, with the exception referred to in paragraph 6, who will be responsible for conducting these duties strictly in accordance with the regulations.

In all local matters, the officer commanding Army Service Corps will be the adviser of the general officer commanding the district, on supply, transport, and barrack services. He will be the medium of communication on these subjects within the district. He will also be responsible that all executive Army Service Corps duties are strictly carried out in the district, as laid down in Section II. of the Regulations for Supply, Transport, and Barrack Services.

The officer commanding Army Service Corps will command all Army Service Corps *personnel* in the district."

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## THE OFFENSIVE *VERSUS* THE DEFENSIVE IN THE TACTICS OF TO-DAY.

*By Captain CECIL BATTINE, 15th (The King's) Hussars.*

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THE brief campaigns on the Tugela and Modder rivers, between December, 1899, and March, 1900, have brought about something like a revolution in the tactical ideas of the British Army. In the combats of December, 1899, on both lines of operation, our troops having a slight numerical superiority, were held up and bloodily repulsed by an enemy almost without military education, who defended prepared positions with dismounted cavalry, a form of action hitherto condemned as feeble. Trained staff they had none, their field artillery was much inferior to ours, and they had practically no organised supply system for movements on a large scale, or for keeping the field in any numbers at any distance from their base.

The arrival of large reinforcements turned the tide in our favour, but on both lines of operation the enemy succeeded in avoiding any decisive defeat in the open field, with the single exception of Paardeberg.

It is not to be wondered at that the success of these amateurs impressed the army of professionals opposed to them, and profoundly influenced the trend of military thought in this country. Indeed, the conclusion seems irresistible that if our leaders and troops did justice to their own methods, those methods must be essentially wrong, and the Boer riflemen, with their more desultory policy, their wide extensions, and indecisive action, better understood the offensive warfare of the future, while their plan of remaining on the defensive whenever possible must have incalculable tactical advantages over the attack.

The ablest contribution to the literature of the new tactics has, so far, been the modest volume by Major Callwell, "The Tactics of To-day." In its pages the most important developments in fighting which the war has brought home, and the new conditions in troop leading and troop training are clearly explained. The fact that this book has been generally used by officers studying for the entrance examination to the Staff College is a proof of the wide assent to its principles which exists in the Army. There are, however, in the field of modern tactics, many questions which at any rate are open to differences of opinion, and the discussion of which may be productive of some good.

Major Callwell gives the weight of his authority to support the theory which has gained formidable ground since February, 1900, that the tactical defensive possesses inherent advantages over the tactical offensive (see pages 50, 51), in contrast to the accepted doctrine which the leaders of the other Armies of the world take such pains to instil into their troops, namely, that to win you must attack. Offensive

strategy entails offensive tactics, and to remain on the defensive is to suffer war, not to make it.

The most insidious danger which can beset an army is disbelief in its own offensive power. When once that opinion has permeated its officer corps, and soaked through its ranks, its days of conquest are surely numbered. It must take rank with Turks and Spaniards, whose valour no one questions, but whose empire is on the wane, who have ceased to be a terror to their neighbours, and who gradually lose their possessions as opportunity arises to attack them.

No alteration in the implements and machines with which war is made can affect that statement. Not only does the passive defence always end in defeat, but the most obstinately convinced partisan of a defensive policy is compelled now and again to attack in sheer self-defence, both locally and on a large scale. The sorties of all besieged garrisons, and the attack which all armies are compelled to make to open certain roads and to prevent outflanking and surrounding movements of the enemy are cases in point.

The concluding paragraph of "The Tactics of To-day" begins thus: "Throughout this little work the endeavour has been to show that one of the broad results of the improvements which have taken place of late years in the guns and small arms with which civilised States provide their military forces is to increase the power of the defensive." But, "few poisons are without their antidote," and the deadly effect of a skilful offensive in tactical action has certainly not become less with the improvement of weapons. Its successful execution demands a corresponding skill in leaders, superior and subordinate, higher training of the troops, and a more profound knowledge of the craft of fighting, just as any improved machinery requires a more skilled mechanic to obtain its best results. Recent wars have proved that to assume the offensive with troops and leaders who are below this standard of efficiency is to court disaster, even when a great numerical superiority is on the side of the attack, and when the enemy is in no condition to strike back with power. If, however, that superiority of skill and combination exists, the result of offensive operations is decisive in proportion to the destructive agencies employed.

The victories of Moltke are the most striking exemplifications of this theory, but other wars which have taken place in the last forty years bear it out, and the war with the Boers is no exception.

Before proceeding too far in the direction indicated by the latest tactical reforms, it would be as well to remember that however obsolete the former methods of warfare may have become, yet they never had a fair chance either on the Tugela or the Modder. In the battles of Colenso, Spion Kop, Magersfontein, and Paardeberg, the cardinal principles of offensive tactics were set at nought. These principles are laid down in our text-books as well as in those of the Continental Armies. Indeed, it was easy to see that the authors of the text-books were, in theory, a very long way ahead of the officers charged with the task of teaching the troops. It may even be said that in the great majority of cases these officers belonged to an entirely different school of tactical ideas, completely out of sympathy with the text-book, the intentions of which, therefore, never had a fair chance of being accomplished.

It may be that the soundest application of former theories would have failed against the better rifle, and in the teeth of the far greater

change effected by smokeless powder, but it cannot be disputed that failure is also the logical result of other causes.

It is now generally admitted that the tactical training of all three arms before the war was unsatisfactory, and to a great extent misleading.

The service of information has now become far more difficult than formerly; it has almost become an art in itself. Everyone knows how little we understood about it before the war.

In the necessary mobility for successful attack, in the cohesion and combination not only between the three arms, but different units of the same arm, we failed lamentably; and, most important of all, our system of command in the fight itself broke down at the most important crisis of the war. Admitting these facts, it is wise to hesitate before we discard wholesale the lessons and experiences of the wars which preceded 1899.

There is yet one other factor of cardinal importance in the conduct of successful attack, and that is the grim necessity of sacrificing the lives of your men. No great result has ever been obtained over a determined enemy without incurring that penalty, and the whole course of military history enforces this sad lesson. The gift of military genius consists chiefly in knowing when and at what point the sacrifice will result in advantages more than compensating the loss of life. Now, special circumstances held the hands of the generals in South Africa. The great distance from all points whence reinforcements could be drawn, the small totals of our armies, the vast size of the theatre of war, the hostile populations all round our columns, the uncertainty as to the resources of the enemy, and the necessity for maintaining prestige in an Empire like ours and the consequent fear of risking too much at a single throw,—all tended to interfere with the purely tactical necessities of the case, and on more than one occasion robbed us of the fruits of victory which were just within our reach if we had pushed on.

It may have been, too, that a long series of victories over savages, which were won at trifling cost of life, and the expectation of the public at home, who drew their opinions of the war from more or less ignorant correspondents in the field, interfered to a disastrous extent with the decisions of our leaders. It must not be forgotten that the Armies of Britain and the United States had not only to face smokeless powder, but also the war correspondents. However wholesome may be the result of subsequent publicity of warlike operations, the presence of amateur historians and critics in the field itself is an additional and grave handicap to any leader, who is forced to take count of their reports, instead of bending his whole intelligence to the military aspects of the situation.

A reverse, to use the term which became unpleasantly familiar in the winter 1899-1900, came to mean an action in which the British lost more men than their opponents. Judged by this standard, the battles round Metz, on the 16th and 18th August, 1870, were colossal reverses, but the result of these battles not only decided the war in Germany's favour, but made her the principal State on the Continent for thirty years.

These considerations, the tactical and organic unreadiness of our Army for war, and the reluctance of our generals to hazard all their resources at the crisis of the campaign, are the most weighty in accounting for the comparative failure of our arms; but a number of

others are easily brought forward which render the late war different to any other probable one; such as the nature of the country, the novel tactics and armament of our foes, and so forth.

With regard, however, to all such reasoning, it should be remembered that every war teaches fresh lessons and has its own surprises, and a sound tactical training and organisation is precisely that which is able to face the unexpected and triumph over crude methods and impromptu levies. Moreover, less than any Army in the world is ours able to foresee with whom it will next be at war and to prepare deliberately to defeat the well-known methods and resources of one marked-down enemy.

Some advantages the Boers undoubtedly had which it is inconceivable would be enjoyed by a great military Power, European or American, in the elasticity of their lines of operation and their consequent ability to choose the fields of combat. They fought when and where they pleased, and retired across a whole province when they wished; they had over us the same strategical advantages which Napoleon's enemies put to such good use in 1812 and 1813; but an Army which had to-morrow to bar the road to Berlin from the Vistula, to Paris from the Moselle, or to London from Colchester, could not make a present of a single yard of soil.

It would be out of the question to abandon fortresses and territories and important centres of population, and impossible to disperse the defending forces with a view to their resurrection in arms at an early date.

The same as regards tactics. The Boers would only stand to fight in large or small numbers when the ground or other circumstances gave them substantial advantages, but in the war of to-morrow we must expect to see the field disputed step by step. Our next enemy will not consist entirely of cavalry, and will not therefore be able to ride away so soon as he has had enough of the fight. Retreat in the face of a victorious enemy who has come into close action with the vanquished will be a most difficult task.

On the other hand, a military Power will not hesitate to expend its troops. More men in attack and defence will be allotted to the ground, attacks will be pushed home and repeated with far less regard to loss than was evinced by the Boers. The offensive will be more often assumed; that being the fundamental creed of modern military science. Close and shock action from infantry and cavalry, supported by a far more formidable and better directed artillery than that of the Boers will certainly be used against us, and these means of offence will be controlled and directed by leaders whose technical training has been thorough, and who have been carefully chosen in the Armies against which we are likely to be engaged.

#### ORGANISATION OF BRITISH INFANTRY UNSUITABLE TO TACTICAL OFFENSIVE.

Perhaps the greatest handicap under which our infantry labours, in comparison with foreign troops, is its battalion organisation.

The Armies of Europe, without exception, have made the company numbering about two hundred men on the battle-field, the principal executive and administrative unit. The commander of a company is really, and not only theoretically, responsible for his com-

mand. He trains, administers, and leads them in peace and war. He exercises more power over them than a battalion commander does with us, and his personality is the mainspring of the company's activity. This unit is the largest which can be directed by one man in a fight, and is large enough to carry out an independent task and to make itself felt. Four such companies make a battalion, and twelve a regiment.

In the British Army the battalion of eight companies corresponds organically to the Continental regiment, and as a tactical unit to the Continental company. This organisation labours under the disadvantages that its companies are too small for independent enterprise, and the company leaders, not having wielded executive authority in peace, are gravely handicapped by having it suddenly thrust upon them in war without previous experience; yet this is what necessarily happens, since it is impossible for one man to direct eight hundred in action. A number of untoward incidents have made this fact clear. The proposal to break up the battalion practically into two fighting units is some recognition of the real state of the case; but the Continental plan is superior, and to stick to our own method, in spite of the grave disadvantages, is not unlike making the horse push the cart instead of pulling it. Moreover, the necessity exists for a permanent cadre larger than the battalion.

Closely allied with the tactical organisation of Continental infantry is the method of handling its component parts in action.

Instead of that most disadvantageous formation, the quarter column, the rendezvous formation is the same as our cavalry employ, *i.e.*, a line of company columns massed at close interval. The captains are mounted, and their companies are deployed for action as required, but the fundamental principle is observed of fighting from depth in each company. To each company leader is a separate task assigned, and each retains his own reserve in hand so long as he thinks fit, gradually using up his command in pushing forward, in contrast to the plan of thrusting whole units in widely extended order straight into the fighting, when all concerted direction ceases under moderate fire.

A number of fights in South Africa showed that, with the bravest troops, these tactics of ours frittered away our strength in indecisive action, and bootless success when eventually we did capture the hostile position.

It is the fashion to talk of a frontal attack as a blunder, but without frontal attack there is no such thing as decisive action. The most successful turning movement depends for its result on the enemy being held in front, and an enemy must be foolish indeed if he allows himself to be outflanked unless he is pressed so hard in front that he cannot shake off his adversary. A flank attack must generally be locally a frontal attack, and if too wide an extension be made to deliver it, the risk is run of the defender assuming the offensive with deadly effect against the outflanking troops while weakened by wide extension.

Liberties were taken by the Boers in this respect which would probably have been severely punished by a Continental Army, because the Boers themselves did not venture to attack, but on such experiences as the advance from Bloemfontein to the Vaal it is extremely rash to build up a tactical system.

The most brilliant instance of a flank attack on a great scale in modern military history is the battle of Chancellorsville. But the Army of Northern Virginia was led by three generals, to each of whom the term military genius may be ascribed without flattery. Its movements were concealed by forests, and its opponents were indifferently commanded. When Lee attempted to repeat the performance at Gettysburg, after Jackson's death, by falling on the Federal flank and rear with Stuart's cavalry, the blow missed its object, owing partly to the wide disconnection of the troops to whom the enterprise was assigned from the main body whose attack they had to assist. Yet the Gettysburg campaign was fought on a far smaller theatre than would be a struggle between two great military Powers with the weapons of to-day.

The type of attack exemplified by Ulm, Sedan, and Paardeberg, the complete re-investment of a field army is now, as formerly, the most complete tactical victory which can be obtained; but it requires a great preponderance of strength on the attacking side. The next best plan for the destruction of a hostile army is to cut in between its wings and compel its troops to retreat under the fire of the successful assailant. Of course, the flank attack must, whenever possible, be combined with the frontal one; but unless the area of the battle-field is small enough to admit of the points attacked being under fire from two directions at the same time, the actual effect of the flank attack will be comparatively local.

As an illustration of this plan of attack the battle of Spion Kop is rich in lessons.

Our troops, by a successful frontal attack, drove a wedge in the enemy's line at night. The advance was, by an error, stopped too soon, and the attacking troops at dawn found themselves exposed to enfilading fire and enveloping attacks which were pressed to close action by the Boers, almost to hand-to-hand fighting.

Nevertheless our attacking column, now thrown on the defensive, held its ground and drew on itself the best part of the enemy's troops. Within reach of tactical action, on both flanks of our column, were present on the field enough British troops to have given us a decided superiority in the battle. Had these troops been sent forward to the last man to the help of the comrades already engaged there can be little or no doubt that the enemy, weakened and dispirited, would have been compelled to retreat across the comparatively open ground which lay between Spion Kop and Ladysmith, within range of our rifles, and with the garrison of Ladysmith on its line of retreat. The most important battle of the Boer war may fairly be claimed as conclusively proving the necessity of grasping the nettle and the absolute impossibility of winning decisive tactical success without doing so.

#### A CLASSIFICATION OF THE METHODS OF ATTACK IN THE FIELD.

Having arrived at the conclusion that the bull must be taken by the horns, the next question is: how best to do it?

1. There is the plan of shooting an enemy out of his position. Perhaps the most remarkable lesson of the Boer war has been the extreme difficulty of driving an enemy from his ground by fire action alone. Determined troops, protected ever so little by natural or



artificial cover, can, as a rule, only be conquered by this method if it is combined with enveloping and surrounding movements.

2. There is the approach by sap, successfully adopted by our troops at Paardeberg. It was frequently used in the American Civil War, and will no doubt be often seen in the future. In other words, it is the plan of treating a defensive position as a fortress, hastily erected, but sufficiently strong to require the methods of fortress warfare.

3. Night attack. The Boer war abounds in examples of night attacks, both successful and otherwise. The advantage to the assailant is penalised by the difficulty of manœuvring and leading in the dark, and none but well-trained, brave troops, with the most advantageous tactical organisation, need expect to win much by a night attack on a big scale.

The capture of Kars by the Russians on the night of November 15th, 1877, is an example of what can be done by troops who possess these qualifications. The Russians moved from their trenches at 8.30 p.m. The Turks opened fire at 9.30 p.m. By 5 a.m., November 16th, a modern fortress had been captured after fierce hand-to-hand fighting, and with a loss of two thousand three hundred killed and wounded to the victors.

4. Here we reach the point at issue, viz., the attack by day; is it feasible in the teeth of modern armament, and, if so, how should it be attempted? Admitting that the rifle and ammunition of to-day can hold good an open field of fire, we must yet remember that no position with over a running mile of front will be without undulations, woods or buildings to spoil its glacis, and which will permit of an attack at close quarters, and even hand-to-hand, from troops who have been taught to use their shelter. Moreover, no defensive line is quite straight, and opportunities occur of locally outflanking. Troops will only be able to advance by most skilful use of any protection the ground may give, and by the covering fire of their own side.

It is also absolutely necessary to the success of the attack that the defenders' line of riflemen should be approximately located, and this can only be done by most careful and skilful reconnaissance by trained scouts. The scouts of the attacking side must literally stalk the defender, and this is just as necessary in any one of the first quoted plans of attack, or in any combination of them with the last.

An attack on an army which has taken up a defensive position by day, without counter entrenchments, pre-supposes then a normal field of battle, which while giving the defender a good field of fire, is not without accidents of ground, and capable of sheltering the attacking riflemen.

These must consist of two distinct divisions.

The first will seize a position as near as possible to the enemy's position, from whence it will keep the whole defending line under fire, and will be able to beat with a ceaseless pelt of bullets the spot selected for the charge of its own stormers.

This point will of course be made doubtful to the defender as long as possible. He must be menaced the whole length of his line so far as possible. It may be necessary even to sacrifice troops in a false attack to deceive him, and such false attacks may sometimes be successfully pressed home. The actual goal of the stormers must be so completely swept by rifle fire up to the last moment that the exposure of an eye or a finger in taking aim should be a serious risk to the

defending troops. Single riflemen should crawl up in advance of the firing echelon, endeavour to pick off the defenders' boldest men, and directing leaders. The Victoria Cross could not be more suitably awarded than for effective service of this sort.

The enemy's line of riflemen having then been located, and its neighbourhood smothered with bullets, the most difficult part of the task remains to be done, namely, the advance of the storming party or parties. In the teeth of smokeless powder and the rifle of to-day in the hands of a determined adversary, there is but one plan for bringing up your men to within charging distance, however well covered by the fire of their comrades, and that is the plan long practised in the French Army, and known as the advance by *petits paquets*. Attacking infantry can no more advance to within a hundred yards of a position at ten paces extension than they can in line of company columns, and, if they could, they would probably effect nothing when they got there. The formation of the advancing infantry in *petits paquets* depends absolutely on the lie of the ground, which has, at any cost, to be reconnoitred before the attack. Handfuls of men are brought over the fire-swept area, regardless of formation, either crawling or running, or marching in step, in whatever way the enemy's fire permits. Every inch of ground within charging distance of the point of attack which is in any way sheltered from fire is filled with troops. Directly the signal to charge is given, a simultaneous rush takes place, and supporting troops must follow as close as possible on the heels of the first echelon of the attack.

The assistance in this manœuvre which infantry demands from its artillery is that the ground in rear of the defending riflemen should be effectually shelled, so as to kill their horses or ponies, if they consist of cavalry, stop their supports from helping them, and giving them anxiety as to their own chance of retreat from the advancing swarm of bayonets.

To shell men out of cover, be it ever so light, has been proved to be a very difficult matter.

The shape then that the infantry attack of to-morrow is likely to take is well represented by the Roman gladiator with his net and trident. The enveloping net of the skirmishers and firing parties must cling closer and closer to the hostile position until the stormers have reached their goal, when they should immediately open out, take what cover they can, and follow up their success by fire action.

The experience of the last and other recent wars goes to prove that attacks made on these principles, and by troops who thoroughly understand what is intended, will usually succeed. What is more doubtful and harder to foresee is this: When the wedge has been driven into the enemy's line, will it become a shot-trap like Spion Kop, or will it dominate the enemy's position, sever his forces, and compel his retreat under fire, as the capture of the Niederwald pierced the defending line at Wörth, the Rotheburg at Spicheren, and as the capture of the Bois de la Garenne forced the French defensive line covering Sedan?

Generally, in the case of serious attacks, the troops told off to storm the position should not open fire until they have thus accomplished their first mission. Their fire will not injure the enemy much, but it will expend ammunition, which may be worth its weight in gold an hour later. The act of firing also gives an excuse for holding on



to captured ground instead of advancing further, and at close ranges reveals the position of the attacking column, and exposes its men while taking aim.

The word column, indeed, more exactly describes the formation of the assailants: they should pour like a river into the defender's position along the line of most cover. If the old attack formation resembled the advancing tide, the new one will recall a number of parallel or converging streams rushing forward, as the surface of the ground permits.

#### THE INFLUENCE OF WOODS ON THE BATTLE-FIELD.

Woods are rarely absent from the battle-fields of Europe and America, and more than any other accident of ground they favour the attack over the defence. In South Africa, they were scarcely ever found, and that in itself gives defensive tactics in that country an advantage they would not have elsewhere. A long list of battles instantly occurs to the student of military history at which the woods have covered the dispositions of the assailant, have marred the symmetry of a defensive line, and often enough caused its ruin. The American Civil War was rich in examples of woodland fighting, and the great leaders of the Army of the Northern Virginia gave many a lesson of how to turn to account the friendly shade of the forest in preparing and dealing the most stunning offensive strokes, and also in the defensive tactics which most effectually check and harass an attacking enemy.

The edge of a wood forms the most tempting target for attacking artillery, which, if the wood is of any size, can with difficulty be met by the defenders' guns. A zone of some hundred yards in breadth can be rendered untenable and, unless the defending infantry have had leisure to erect extensive obstacles within the wood itself, the assaulting troops can come to close quarters under circumstances which are all in their favour. The one essential is a sound tactical system of leadership, so that the captains of companies may be able to carry their men along with them in spite of the confusion incidental to forcing a way through the wood. It was their superiority in this respect which decided the wood fight in favour of the Prussians at Sadowa.

A wood once captured, its value as a starting point for fresh enterprises will, of course, depend on the ground beyond it, but useful it must be to conceal and protect the concentration of attacking troops, and will very often enable them to penetrate and sever the hostile position.

It is the fashion to sneer at the plan of studying the battle-fields and records of the Franco-German war. No greater mistake could be made. Whatever we have just learnt as the result of our own recent experiences, the war of 1870 still remains the most important and in many ways the most typical instance of modern warfare, and no one who has not made himself acquainted with the great fights round Metz, and the ground upon which they took place, can claim to be abreast of modern military science. That, at any rate, is the thorough conviction of the leaders of military thought on the Continent.

The struggle for the possession of the ridge from St. Privat to Point du Jour is the principal example of offensive tactics carried to

successful and decisive conclusion in spite of calamitous errors and heavy loss of life. Throughout the day the curtain of woods which hung round the French left, and hid their adversaries' movements, exerted a decisive effect in detaining the French reserves on this flank, and thus rendering possible the turning movement against their right. The wooded sides of the Mance valley enabled the assailants to hang on to ground from which they would otherwise have assuredly been driven pell-mell, and repeatedly carried their fighting line to within charging distance of the enemy's rifles. The picture of the mixed mass of German foot soldiers cowering behind the narrow shelter of St. Hubert, less than 300 yards from the foe, suggests that had the dispositions for attack here recommended been adopted, had this large force reached St. Hubert by design, in good morale, and, unshaken by losses, which were palpably the result of faulty leading, instead of drifting thither panic-stricken, and in defiance of their leaders, the final and decisive spring might have been made from that point as well as from others further to the French left.

The frontal attack on St. Privat would certainly have resulted in destruction had the defenders been armed as we are at present. Nor would the successful advance up the railway, which was really decisive of the day, have been possible; but the proposal of the commander of the Third Corps to cut the French Army in two by the capture of La Folie copse on the crest of the narrow ridge, would now, as then, be possible, if executed under the best conditions.

Until the fate of a war is decided by such another battle, fought out to a finish, between rivals of such military value as faced one another on the 18th August, 1870, it is sheer folly to throw its lessons over in favour of a system of tactics which, at best, has produced desultory fighting and indecisive success.

A point of supreme importance in deciding whether or no a frontal attack on a defensive position is possible must be, of course, the length of time the defenders have had to entrench it, and their aptitude for doing so. The Boers and Turks displayed unusual cunning and energy in this respect. The character of one's opponent has, therefore, to be considered, the probability of his being well provided with entrenching tools, as well as his intention of standing to fight. An army with a large proportion of infantry will rarely expend its energy in digging unless the plan has been made to defend a particular position.

After the battle of Spicheren, the Army of the Rhine successively entrenched and abandoned positions at St. Arold and on the French Nied, and were eventually to meet attacks in the open at Borny and Vionville, while at Gravelotte and St. Privat the natural strength of the position had been but little improved by entrenchment.

Has the enemy planned a defensive action on this ground? Has he had one hour, or six, or twenty-four to prepare for it? These are questions of no less interest than the others to be answered by the attacking general. How near can I get my troops to the position unseen by the enemy? Is there a salient in his line which can be enfiladed? What flaws do the accidents of the ground make in his field of fire?

The picture which is readily called up to the imagination by the term frontal attack is that of which Colenso and Paardeberg may be

said to be typical. Gallant troops, unable to retaliate on the hidden foe, shot down by hundreds, until they are sullenly compelled by the murderous fire to give way.

There is, however, a reverse to the medal.

Let the reader imagine himself to be serving in a battalion to which is confided the defence of an important section of a position.

The ground in front of the position slopes gently away, and for about half a mile or more is open and marked by few undulations. Here and there a low straggling fence, with a shallow ditch, slightly obscures the commanding view from the defended crest. Parallel with the front runs a little stream. In the hasty reconnaissance which has preceded the occupation of the ground, it has hardly been grasped how important this bit of the line may be, with the wooded slopes in rear of it, connecting, as it does, a village prepared for defence and an entangled copse, and curving outwards slightly in the direction whence attack may come. The battalion has marched several miles in that grey of the morning before taking up its position, and its breakfast has been of the scantiest. The weather is cold, and the rain falls in sharp, slanting squalls in the men's faces.

Only a few picks and shovels are available. With these, however, strenuous efforts are made to improve the slight cover offered by a stone wall and a rambling fence on the crest of the ridge.

Three hours after, the battalion has quitted its bivouac in the rain, the first shells are fired from unseen guns. Gradually the fire increases and extends. Shells fall on the ridge, and tear up the brush-wood on its reverse slope. The men take what shelter they can, holding the defensive line with a few rifles.

By and by the opposing infantry can be seen, and are fired at; for some time there is no reply. Another hour has passed, a small number of casualties have occurred, ghastly wounds inflicted by shell. Presently the hum of bullets becomes perceptible, the enemy's skirmishers are still pressing forward, and some few of the most daring have actually reached the banks of the little stream, and found precarious cover.

During the next half-hour the intensity of the assailants' fire increases, while it is evident that the troops to the right and left are engaged up to the hilt. The whole ridge is alive with bursting shell; shrapnel falls in showers behind the crest, driving back the companies in reserve, and stopping communication between them and the fighting line more or less. The latter has now to meet a perfect sleet of bullets, which come from more than one direction, while the enemy's skirmishers continue to press forward; it is also evident that small handfuls of men are rushing from one point of cover to another in spite of the spurt of fire which comes from the crest every time they are seen.

Still the advance continues, and the attacking infantry seem to sink into the ground in the intervals between the rushes. Bullets whip the ground in front and behind the crouching soldiers on the ridge; not a few are hit as they aim, and their fire sensibly slackens.

In another half-hour it is evident they will have to face the mad rush of the storming column, consisting of men who know that it is at least as dangerous to go back as to go forward.

Whoever can in imagination realise this situation, and feel the terrors it is bound to produce upon the weary and weakened men on the hill, will understand that all the chances of war are not against the bold and resolute assailant in the struggle for the key of a position.

"THE TACTICS OF TO-DAY." THE CHAPTER ON INFANTRY TACTICS.

In Major Callwell's book, the tactics of the attacking infantry are described and explained. He lays stress on the necessity for the company being the tactical unit, though it is clear from his proposal to extend one of our weak companies over two-hundred-and-seventy yards of front (the manner in which he proposes to distribute the battalion in action with five companies "in front line") that he is not weaned from the old idea of the battalion as the tactical unit.

To lay down rules for the extension of attacking infantry to a given number of paces is equally futile. The ground and the ground alone can determine how close to one another the men move and fight.

Major Callwell realises that if the charge is to be made at all it will "take place in a swarm"; though he seems to think that the thin scattered lines, who have skirmished their way from two thousand yards to this point, will close in on some sheltered spot to form this swarm, instead of merely demanding from this line of skirmishers to hold and occupy the enemy while a fresh echelon of troops, specially led thither for the purpose, under the protection of their comrades' fire, delivers the rush with the bayonet. The first is linear tactics carried to extreme development, the latter depends for its effect on the advance of a column protected by the fire of the skirmishing line, and recalls the system of attack employed by the French Revolutionary Armies, with the difference that the latter had no occasion to keep out of their enemies' sight during the advance.

The picture of several extended lines following one another at one hundred and fifty yards distance, and firing over one another's heads, drawn from the fights in South Africa, will sometimes be seen in the battle-fields of the future; but in England and on the Continent it will be the exception to find ground sufficiently open, and more often there will be, as of yore, but one skirmishing line, though, doubtless, fire will be maintained, by parties told off for the purpose, over its head from any point of vantage, while the supports and reserves will move in the folds of the ground, and remain in compact formation so long as any shelter from fire is to be obtained near enough to the men whom they have to support.

The necessity for each company having the responsibility of covering its own advance with fire is insisted upon, but the proposed distribution of this unit in action would not facilitate the matter.

The rate of advance is touched upon, and it is rightly conjectured that "*on ordinary ground, and in face of average resistance, the movement will usually take many hours in execution, from the moment when the advance commences up to the crisis of the enterprise.*"

It was characteristic of our infantry attacks at the beginning of the war that the attempt was made to hurry them through in a manner which is impossible nowadays.

The pages devoted to the defence are for the most part admirable, and, indeed, it is preference for the defensive attitude, and belief in its superior strength, which is the basis of the author's creed. He

may be right that "*troops in dispersed formation are almost invulnerable against direct attack if they have a satisfactory field of fire,*" but on this condition everything depends. Quite often enough for the purposes of the assailant, "the satisfactory field of fire" will be wanting, and there will occur the chance of ruining the defence, and of imposing upon it the will of the more enterprising side.

In contrast to the belief in the defensive rôle, which has now become fashionable, stand the "observations" which Sir Redvers Buller is reported to have made for the benefit of his Aldershot command on his return from the Natal campaign, the long series of offensive movements which carried his army from the Tugela into the heart of the Transvaal in the teeth of a stubborn enemy, and in spite of natural obstacles as formidable to an invader as ever were encountered by a large army.

His observations on infantry begin as follows:—

"The main lesson learnt in South Africa appears to have been that infantry can successfully attack almost any position, provided the attention of its defenders can be absorbed by fire directed by bodies of troops other than those engaged in the actual assault. The best method of arriving at this end is by the co-operation of the two or of the three arms; but if that cannot be secured a second body of infantry or machine-guns should be employed in a favourable position to pump lead upon the enemy while the attacking troops are advancing to the assault. In fact a position must be attacked by a combined movement rather than by a single movement." The case for offensive tactics on the ground could not be more forcibly given.

In the conclusion of Major Callwell's book, the chapter on the Principles of Attack, pages 27 to 30, the difficulties of the attacking side are ably and graphically set forth, and the methods by which "the attack will in the immediate future gain the day in battle," namely, "by sweeping round the flanks of the enemy," by a process almost akin to sapping; the seizure of successive positions, and fortifying them till the enemy can be crushed by close range fire, or ousted by a sudden rush across a very short distance, "differ in no wise from the resources of the attacker above described." Another deduction, however, would be more correct from this "conclusion," and that is:—the troops which can by any means be compelled to move within reach of the enemy's fire suffer a grave disadvantage, and that may happen to the defender as well as to the assailant. The successful attack by the Third Prussian Corps on Bazaine's Army, moving from the Moselle to the Meuse, on 16th August, 1870, is not a more convincing proof of this than the ease with which General French headed off Cronje's retreat on the Modder banks, and brought it to a standstill.

It would seem from the result of these, and many other actions fought under similar conditions, that the great object of a general should be to compel his adversary to move within reach of attack, and it is clear that the only way to accomplish this end is to attack with resolution, as the Prussians did at Borny, Vionville, and Beaumont, and the Boers at Lombard's Kop and Nicholson's Nek, unless superior mobility enables the offensive to capture a defensive position which bars the enemy's further progress, and which cannot be neglected, as, for example, the investment of Bazaine by the Second

German Army on the 19th August, 1870, and the heading off of Cronje at Paardeberg Drift by General French.

From many points of view the situations of Bazaine on the Moselle, and Cronje on the Modder, resembled one another, and if there be differences of opinion as to whether the attempt to storm the laager at Paardeberg Drift was necessary or not, there can be no doubt that their prey would have escaped the German Armies on the Moselle had they not been prepared to stake all on the tactical offensive. Had those Armies not penned in Bazaine by the capture of St. Privat, they never could have spared the three army corps from the Moselle, which completed the destruction of MacMahon on the Meuse, nor in all probability would the latter have been driven into a corner on the northern frontier. The whole circumstances of the campaign would have been changed enormously in the favour of France.

#### MASS TACTICS.

One of the most puzzling questions which the invention of smokeless powder has given rise to is this: to what extent have the new conditions of fighting modified former calculations as to the number of men per yard required for a reasonable chance of success both in attack and in defence; and although it is easy to be too pedantic in making such calculations, yet it is obvious that some basis for them must exist to enable commanding generals to dispose their forces to best advantage. At Gravelotte the Germans had more infantry and guns on the ground than they were able to deploy, and although this was to some extent the result of faulty direction of the marching columns, Moltke's one comment on the day's work as he drove back to Pont à Mousson, is said to have been: "One cannot be too strong on the battle-field."

At Plevna three important battles were fought over practically the same ground on a front of more than seven miles. On July 20th, the Russians disposed of six thousand five hundred men; on July 30th, thirty-five thousand men were engaged, and on September 11th nearly one hundred thousand troops took part or supported the attack. The Turks received proportional reinforcements after each battle. The field of fire was excellent, and the Russians neglected what little cover they might have used in their advance. There can be no doubt that with smokeless ammunition the Turkish victories would have been far more complete. As it was, nothing but the astonishing mistakes of leadership and direction on the part of the Russians, on September 11th, prevented their gallant infantry from capturing the Turkish entrenched position; and on both wings at Grivitzza, and on the Green Hills, they actually drove the Turks beyond them with the bayonet.

Even after making due allowance for the changes in fighting caused by smokeless powder, the result of the battles of Gravelotte and of Plevna, September 11th, suggests the question of whether it may not still be possible for a bold and skilful leader, who is prepared to pay the price, to smash an enemy by violent and repeated attacks with superior numbers, after the methods of Moltke and Napoleon.

The invention of smokeless powder has unquestionably rendered a thin firing line of men as formidable at twelve hundred yards as three times their number were in 1870 and 1877 at five hundred yards, given an open field of fire; but the necessity for adequate numbers on

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the points of attack with the bayonet, of adequate supports to the rush of stormers, of sufficient men to replace the melting away process of skirmishing lines, which the last wars have proved to be so considerable even with the best troops, and, lastly, the necessity of replacing men who will become physically worn out by the length of the battles of to-morrow, render it dangerous to accept the theories of wide extension and the plan of trusting entirely to outflanking movements. Not only will the prey generally escape, but he will not infrequently turn the tables and ruin his scattered foes as he strikes back with sufficient determination, and is prepared to lose the same proportion of men as Marlborough, Frederic, Napoleon, Lee, and Moltke, all considered unavoidable and necessary to achieve a great tactical victory by means of an offensive stroke.

It is, at any rate, more certain than ever that, with contemporary armament, the larger the armies engaged and the more important the issue to be decided on the field, the greater will be the number of men required per yard both in attack and defence; also it is probable that big woods and steep mountain country will swallow up almost as many troops as formerly; so that in handling large armies the calculations which held good in 1870 do not need to be so greatly modified to-day in deploying troops on the field of battle, as is popularly supposed.

#### DEFENSIVE ARMOUR.

Among the changes in armament which the near future is likely to bring about, and which, if successful, will largely increase the power of attacking troops, is the invention of defensive armour for the individual soldier. The fact that such armour has become gradually neglected since the invention of fire-arms is out-balanced by the urgent necessity for its re-introduction, and the use of shields on field-guns is likely to be the precursor of fresh expedients of the same kind. It is, after all, the rifle bullet which settles the fate of a battle to-day, and it requires neither a very heavy nor a very large piece of steel to afford absolute protection from frontal fire to a soldier lying or crouching on the ground.

#### CAVALRY AND STAFF.

There are two qualifications vitally important to an army which assumes the offensive *rôle*, and as war becomes more complicated these conditions become more indispensable.

The first is a superiority of cavalry over the enemy so as to forestall him strategically and tactically. The second is the possession of a system of executive command which ensures the harmonious and co-ordinate working of large masses of troops separated by great obstacles or by great distances in the crisis of a fight, when a constant flow of orders is impossible, and when a few well-chosen sentences must render intelligible to every subordinate leader the task he has to do. If we compare the marvellous precision with which Moltke directed his mighty columns of troops in 1866 and 1870 with the constant failure to strike together, which is remarkable in wars carried on by extemporised staffs with indifferent chiefs, we shall realise the importance of successfully solving this problem in peace.



## CAVALRY.

The cavalry question is attacked by Major Callwell in his chapter on the "Tactics of Mounted Troops," and with his main conclusions I cordially agree. "For campaigns between great modern Armies mounted troops must consist of genuine horsemen who can wield the sword or lance with confidence from the saddle, but who regard the use of fire-arms on foot as their principal means of offence and defence"; also "it would be as unwise to deprive the trooper of the *arme blanche* as it would be to rob the infantryman of his bayonet. To attach undue importance to this secondary armament is as inexpedient in the one case as in the other." There will not be found many practical cavalymen to dispute these opinions, but beyond them the common ground of agreement does not go far.

In the Boer war the greatest part of the mounted troops in our Army consisted of Mounted Infantry, Mounted Irregulars of all sorts, and Imperial Yeomanry. Now while the Regular cavalry officer may meekly admit every accusation that has been flung at his service by critics for the last three years, it is indisputable that the substitutions of these levies for a Regular cavalry force proved a costly failure.

Hardly a month passed by but some convoy or column was destroyed, whose patrolling was confined to these new-fashioned mounted troops. In our Regular regiments, whatever were the faults of their personal training and organisation, the country had the nucleus of a cavalry which might, with judicious re-organisation, have been expanded into a mounted force superior to any other in the world.

The opportunity was missed.

The irregular mounted troops, without any leavening of leaders or N.C.O.'s trained in the art of cavalry soldiering—and it is an art not to be learnt by an infantry soldier jogging round a riding school a given number of times—have never attained the standard of value necessary to compensate for the "outlay which their organisation demands, the strain which their forage throws upon the supply and transport services, and to repay the inconvenience which their movement by rail or ship entails."

Of course, in the war there have been corps of irregulars which have proved themselves brilliant exceptions, and corps of Regulars which have not done as well as others, but the main contention holds good.

When infantry are put on horseback they become cavalry. It is the possession of the horse and not of a fire-arm which distinguishes the two. It is the merest confusion of terms, a confusion which is very mischievous in military affairs to call such mounted troops infantry, whether or no the officers and men were drawn from infantry regiments. The point has far more importance to the future of our cavalry than most people imagine. The cavalry soldier requires higher training than infantry, both for leaders and for troopers. It is possible that the Armies of the future will consist of a very large proportion of cavalry, and when horses have been used up, ponies will be drawn upon to mount the troops. Since it is easier to ride a pony than a horse, less perfectly trained troops can have the ponies allotted to them, while the first line will have the horses.

Patrolling in concert against smokeless powder requires careful training, and so does fighting dismounted. A squadron which does

its dismounted work intelligently and quickly will always be able to deliver a charge. Both on foot and on horse speed is the essential condition for success.

It may or may not be that the shock of charging squadrons is a thing of the past, but two conditions are certainly essential to success if shock action is ever to be used:—

1. Every squadron within reach must be able to participate.
2. The cavalry must be able to deploy at an instant's notice, and form a charging swarm from column of route.

The reason for the first is that more than ever in the past half-hearted attacks will be worse than useless, and if part only of your cavalry is capable of shock action, it will probably not be they who are at hand when the one opportunity of the war occurs in which to deal a knock-down blow with sword and lance.

As to the second, these opportunities will be so fleeting, and the necessity for concealment up to the last moment so urgent, that no cavalry which cannot stalk its enemy in a narrow column and deploy at speed into a series of supporting echelons will ever get a chance of striking with steel on horseback. Nothing could have been less like a cavalry fight with contemporary armament than the manœuvres and exercises we practised in the years which preceded the war.

Above all, cavalry must be fired with the spirit of restless offensive and restless curiosity. A book may well be written on the subject, and on the chances we have under existing circumstances of developing a cavalry force capable of taking the offensive in the next great war, and no one who has grasped the history of recent events can have any doubt as to the importance of the question.

#### CONCLUSION.

The tendency of military discipline is to make all Armies tenacious of tradition and opposed to change, and this, perhaps, is more marked in a democratic State like ours than in a military monarchy like Germany, whose Army includes all the best intelligence and keenest critical talent in the country. Having regard to the march of mechanical invention, and the consequent perpetual change in armament and tactics depending thereon, it is clear that we must be prepared to modify our tradition or be left behind.

We often hear it repeated that our Army gets more experience in fighting than any other, and it is doubtless true; but we should also remember that Armies accustomed to a long continuation of easy success have sometimes gone down before opponents whom they despised, but who have quietly and laboriously perfected their forces in peace. No sensible man denies the use of experience in war, as in other business, but experience of war is not confined to a single struggle, however novel, interesting and absorbing. To benefit by our most recent experiences we should compare them carefully and dispassionately with all the most reliable military records which modern wars have placed within our reach. Speaking generally, our officer corps, though well instructed in many respects, has neglected the study of history. Indeed, an officer can easily get his commission without any knowledge of the subject whatever, although he is crammed with academical knowledge having little or no practical bearing on his profession. The

entrance examination to the Staff College includes some military history, but it holds a far less important place than in corresponding tests in foreign Armies. An enquiry into the subsequent study of this science in other countries, and the methods of teaching it in combination with other branches of military art, would show how much greater importance is attached to it in France and Germany—especially in the latter country—than in England.

An Army in its system of training has to steer between the danger of encouraging too much criticism, which may degenerate into cavilling at superior authority and ignorant fault-finding on the one hand, and on the other too much conservatism; the indolence of blind obedience, the reluctance to assume responsibility or initiative and that respect for routine as an end in itself instead of as a means among others to achieve great results.

Experience has shown that the latter is the greater danger of the two.

The former is a healthy symptom found in armies of volunteers and extemporised forces, whose zeal is greater than their knowledge, and which corrects itself with time. The latter, however, is a slow but certain poison which has ruined fine armies and brought down mighty States; and if it had this result in the days of Austerlitz and Jena, when troops contended under the eyes and by the word of command of a few leaders, how much more so is it now, when the intelligent co-operation of every individual is required over a wider area of combat, wherein no man can raise his head to give or ask for any direction without the risk of getting a bullet through it.

Every British officer who came in contact with the Continental Contingents in China must have realised how different their tactical organisation, theory, and practice, are from ours; and the faith in offensive operations as opposed to the plan of awaiting the attack and submitting to the adversary's initiative, marks a dividing line between the ideas most in favour with the principal Continental Armies and the theories which just at present are fashionable with us.

It is a remarkable comment on these theories that we have never yet been able to put them in practice. And so long as we aspire to compete for dominion with the rising Empires of the world, we must face the necessity of having an Army fit for offensive warfare.

## THE DELHI MANŒUVRES, DECEMBER, 1902.

*By Captain WILLOUGHBY FORTH, Indian Army.*

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THE manœuvres held this winter in India have been, with the exception perhaps of the great camp of exercise of 1885 and 1886, which equalled them in point of numbers, on a much more extensive scale than hitherto in this country.

In the present instance, moreover, the 40,000 troops which were brought together for exercise in the country between Umballa and Delhi, a distance of about 120 miles, from 24th November to the 22nd December, 1902, were assembled under circumstances of exceptional importance and interest.

For the last two years our troops, in small bodies, have undergone a perfectly new system of training, based on the lessons of the war in South Africa, and even while the war was still smouldering great progress was being made in the new method of handling troops under conditions more truthfully representing those to be met with in modern warfare.

By the time that the embers of that conflagration had ceased to glow, these smaller bodies had already been sufficiently practised in brigade field days and local manœuvres at the great garrison centres of India to render them efficient for manœuvre in large bodies, and fit instruments in the hands of experienced generals.

It was, therefore, not only with the concentrated attention of all military experts and critics in India, but also with that of the Continental nations of Europe focussed on them, that the two opposing armies of these manœuvres were marshalled at Umballa and Delhi by Generals McLeod and Wodehouse respectively, and naturally all were on the watch to see put into practice those latent teachings of the South African war, which had been in so many instances learnt at great cost, and the newspapers were daily scanned to ascertain to what extent our troops had learned how to modify the application of tactical principles to meet circumstances as they exist, and as they would be met in future conflicts in actual warfare.

The troops exercised were divided into two forces. The Northern, which was much the stronger, was under the command of General McLeod, and assembled at Umballa on November 24th; the other, denominated the Southern, assembled at Delhi on the same date, under Major-General Wodehouse, C.B., C.M.G.

The former was composed of 20 infantry battalions divided into 2 divisions, one of 3 and the other of 2 brigades, a division of cavalry of 12 regiments divided into 3 brigades, 18 batteries of artillery, including 2 howitzer, one 30-pounder, one 5-inch gun, and 2 horse artillery batteries, also 1 battalion of mounted infantry, and all the proportionate corps troops. The Southern Army was similarly constituted, but had only 1 infantry division of 8 battalions, divided into 2 brigades, 1 cavalry division of 8 regiments, 6 batteries of artillery, of which one was a 30-pounder and another a 5-inch gun battery. There were also the divisional and the corps troops, in the latter of which was included a balloon section. About half the troops in the case of each Army were native.

The Staff were in tents, the nature of their work requiring it; but the remainder of both forces were under *tentes d'abri*.

The chief umpire of the Northern Army was Lieut.-General Sir Robert Low, G.C.B., with an umpire staff of 7 umpires and 20 assistant umpires, the majority of the former being generals and the latter lieut.-colonels and field officers. Lieut.-General Sir Bindon Blood, K.C.B., was chief umpire of the Southern Army, with a staff precisely similarly constituted. The director of the manœuvres and umpire in chief was his Excellency the Commander-in-Chief Lord Kitchener.

Both Armies, pending the arrival of Lord Kitchener, were reviewed by the retiring Commander-in-Chief, Sir Power Palmer, who, in addressing them, dwelt on some of the principal lessons of the South African war, and the importance on the part of the commanders of the two Armies of avoiding wide strategic movements and of adopting a well-arranged plan which would bring as many units into contact as possible and afford useful instruction and experience to their commanders.

Some preliminary and very instructive field days were at first engaged in by the different parts of both Armies amongst themselves, but the manœuvres proper began on the 27th November, when, in accordance with a communication from the Civil Governor (imaginary) of Delhi, directing him to delay the enemy till December 12th by a series of rear-guard actions, while the seat of Government was transferred to Gurgaon, about 112 miles south-west of Delhi, where reinforcements would join them,—General Wodehouse despatched his cavalry ahead to get touch with the enemy, and set out on the following day with his main body towards Panipat, about 50 miles on the road to Umballa, there to entrench himself and await the attack of the Northern Army. A reference to any good map of the Punjab will show all the places mentioned in this account.

The cavalry of the two forces came into contact north of Karnal, and several brushes ensued, in which the Southern cavalry dismounted and skirmished sharply with the enemy and then gradually retired in the face of superior numbers and fell back upon a line covering the main body, and finally, after a forward and able reconnaissance, cleared away to the flanks to enable the latter to utilise to the full its field of fire and also with the object of protecting the flanks either by being echeloned in combination with the mounted infantry and Royal Horse Artillery in prolongation of those flanks, or by placing itself in a favourable position for falling upon the flanks and rear of any force attempting a turning movement.

The Northern main body advanced, covered by a screen of cavalry extending from the river Jumna on the east to just west of the canal of that name on the west, and on the 5th December one infantry division occupied Gharaunda and the other took up its position 5 miles to the west. On the 6th they reconnoitred in force the Southern position, but made very little headway owing to its strength and the successful concealment of the trenches.

On the following morning, the 7th December, the third brigade, under General Whitby, captured, by a well-planned surprise at dawn, the village of Raja Kheree, a most important position on the defenders' right flank which literally bristled with entrenchments, and from the strength of which much was expected.

The main attack was shortly afterwards launched, and the thunder of the 30-pounders was followed by the roar of musketry, which soon

became general all along the line. I took this opportunity of accompanying the staff of Lord Kitchener, who was now riding along the whole front of the left wing of the Northern Army to observe what was going on at this important part of the battle.

The field of fire afforded by the Southern position was very striking, the country being flat, and with the exception of a few insignificant hamlets and clumps of trees, quite open, while the trenches of the defence, though deep enough to afford shelter to men standing, were so artfully concealed that many of us were unaware of them until we rode up to their edges.

The attack was carried out by both divisions of the Northern force, one advancing on each side of the Umballa Delhi main road, which ran perpendicularly through the centre of the Southern position. Both divisions succeeded in driving the Southerners back on their main line of defence, but they could make no further progress, and the one on the east of the road was ordered by the umpires, with the approval of the director, to retire 1,000 yards, and declared to be incapable of advancing for another 8 hours, owing to the losses they must have incurred in actual warfare in crossing so exposed a fire-swept zone.

A brilliant cavalry engagement took place on the right of the position, where a Southern cavalry brigade, assisted by the fire of 4 horse artillery guns, met two brigades of Northern cavalry in an effective charge, in which the former slightly outflanked the latter and thwarted their attempt on the line of communication. The Southern commander, having already made early arrangements for the retirement of his heavy guns and baggage, took advantage of the repulse of the enemy's attack to fall back in orderly retreat on his next position, covered by a rear guard of all arms.

The result of this success of the Southern Army was the realisation of the aim sought for by its commander, namely, to delay the enemy sufficiently to prevent them reaching his objective, Delhi, by the 12th December. In any case it must be admitted that the moral force derived from a similar result to the first action of a campaign in actual warfare would be an all-important factor in favour of the smaller Army and as compared with the physical force, in the opinion of Napoleon, as three parts to one.

Nevertheless, the Northern commander pressed on in pursuit, but his troops were forced by the Southern general to deploy fruitlessly in front of his position at Badwal Majri, and on the 9th were held in check at Badri while the Southern commander was preparing for his final stand at Lovepot.

The actions at the above-named places were ably carried out, and, most interestingly, the last at Lovepot alone being slightly unfavourable to the Southern general.

During this retirement, however, the cavalry on both sides, though very active, did not always employ tactics which were instructive as they might have been. An armistice was now declared, and the Southern Army transferred to the scene of the next phase of the manœuvres in which it became the assailant, after being reinforced from the Northern Army by a division, which at the same time represented the losses incurred by the latter in its attacks on the entrenched position of the Southern Army during the first phase.

General Wodehouse now endeavoured, and at first without success, to draw his opponent on to attack his position, extending from



Ghutorin to Tughla Kabad, but on the 17th the Northern Army made a general advance just as news reached it from its Commander-in-Chief at Meerut that its communications with Umballa were cut off and that it must fall back on an entrenched position west of the Jumna, where reinforcements were expected on the night of the 19th or morning of the 20th December. In consequence of this news the Northern Army now fell back, and the Southern general assumed the offensive, and by a succession of actions, forced his opponents back upon a position extending along the canal from south-east of Humayon's Tomb to about 1 mile north-west of Indarpat, an ancient fort of considerable extent and originally surrounded by a high massive stone wall, now in a crumbling state, which greatly detracted from its strength. Its evacuation was brought about by the fire of the whole of the Northern artillery being directed on it.

On December 20th, the attack was resumed by the Southern commander, and a great effort was made by General Wodehouse to cut in between the main body of the enemy and his reinforcements. For this purpose 48 guns were brought into action, and the cavalry crossed the Jumna by the ford at Okhla and came up the left bank of the Jumna unseen, and attacked the left flank of the enemy and captured 2 batteries and forced the Northerners to retire. The Northern Army was then forced across the ford, and had just been re-engaged on the further side by the leading brigade of the Southern Army when the "Cease Fire" sounded.

The manœuvres which thus drew to a close will, for many a long day, remain notable as the first ones in India, on a large scale, since a war of which the teachings have been generally regarded as dictating a sweeping modification of tactical principles, where the experiences have been unprecedented, and of which one of the results is the obvious necessity for giving all ranks opportunities at manœuvres and field exercise, of practising those duties which they will be called upon to perform in any future conflict with civilised nations.

It is not the province of a correspondent to attempt criticisms, which are best left to the distinguished and experienced officers whose duty it is, in the interests of instruction, to make them; but it will be interesting to consider some of the more noticeable features of the manœuvres. Nothing has, for instance, been more obvious than the importance of signalling and of the dependence on it in these days of extension and concealment, of the successful transmission of information and orders and the simultaneous combined working of the different arms, as well as the different portions of a large force, whose cohesion, when once launched in an attack is most difficult to maintain. A foreign officer who has followed these manœuvres told me there was nothing which struck him so much as the rapidity with which the different portions of a British force get into communication with one another.

On the other hand, signalling has its disadvantages, and from the high walls of Indarpat Fort it was very obvious that the flash of the helio was, in many instances, the only indication of the presence of the otherwise well-concealed troops.

The necessity for a very open formation up to effective ranges, and for the maximum number of rifles to be brought to bear on the defenders after that distance from the enemy has been reached, is a maxim which seems to have become generally accepted and to have been put in practice by both forces during these manœuvres; but a



sound judgment as to what constitutes effective ranges under different conditions and circumstances is dependent on constant experience and practice, for while, on the one hand 1,000 yards may well be termed an effective range when the atmosphere is clear, the sun in rear of the attacking force, and the hostile entrenchments stand well out against a dark back-ground, troops cannot be said to have reached effective ranges until they have arrived at 500 yards or less when the air is misty, the sun is shining in the face of the assailant, and the enemy's excavations are of the same colour as the surrounding ground. The aptitude of officers for discriminating in this respect necessarily varies greatly, and where no rule can be laid down, practice and experience alone can be the guide. The effectual concealment of the trenches by the Southern force at Panipat, though they were simply sunk sheer into perfectly level ground, without any undulation or irregularities to take advantage of, shows what can be done sometimes by the simplest means at hand, for a line of twigs placed upright along the edge of the trench were in many cases sufficient to give it the effect of a demarkation between fields, as there was no parapet, and the earth had been removed to a distance.

In addition to the mounted infantry there was a camel corps, and it is an interesting question which gives the greater advantages where sandy deserts have not to be traversed. The camels carried two men each, but they were much more difficult to conceal, and mounting and dismounting took a longer time than is the case with ponies, which are much handier, and whose ailments and requirements are better understood.

Infantry officers carried a rifle, which they slung across the shoulder when mounted, but it seemed, as a foreign officer who was present said, open to question whether the advantages of not being distinguishable from the men when under fire counterbalances the inconvenience such a weapon must be to a man who has other men to look after besides himself, and the temptation it must be to an officer who is a good shot to shoot instead of using his field-glass and leading his men.

The foreign officer, whom I have referred to above, told me how greatly he admired the natural fighting material of our native men, who, in the case of the Pathan at least, are scouts by instinct and who know how to take cover, the difficulty of advancing men in very extended order being thereby greatly reduced; whereas owing to the short-service system prevailing in Europe there was not sufficient time to complete the men's training up to the standard of modern requirements, and that therefore the greater control essential in their case necessitated less extended formations. He advocated, however, an increased number of officers for the supervision of our transport. The reconnaissance in force of the Southern position by the Northern Army, the day previous to the battle of Panipat, was a necessary preliminary, as it is in all cases where the attacking cavalry has been prevented by that of the defence from overlooking the hostile position from the flanks, or owing to the large target which the cavalry presents from sufficiently approaching its front to enable it to locate the enemy's entrenchments, in which case the duty devolves on a portion of the attacking infantry.

The cavalry no longer then being required in front, the whole should be free to ride round the flanks and observe the ground in rear,

and endeavour to gain every information regarding the strength of the enemy.

Well-mounted officer patrols are the best means which can be adopted for obtaining the desired information, and they should not hesitate to make wide circuitous rides round the enemy's flanks and scour the country for miles in rear.

All this will be difficult work for the cavalry, and if opposed by hostile cavalry it must defeat the latter before this work of reconnaissance can be given full effect, and even in cases where the defending force must advance to the ground it intends to hold, its advance and subsequent deployment can only be observed by the assailants' cavalry provided the latter has succeeded in driving the cavalry of the defence from the field of battle. Here it may be remarked that the generally accepted theorem that cavalry will act dismounted and will never, or very rarely, have any chance of charging hostile cavalry seems a hasty conclusion; but the Boer war can hardly furnish a precedent on this head, for the Boers had no cavalry, and a too servile imitation of Boer tactics in that war is not advisable against troops trained on European principles and co-operating with large bodies of that arm.

It does, however, remain an open question whether, in the charge which occurred on the east of the Panipat position between two brigades of Northern cavalry and one of Southern supported by four guns, the latter being in inferior numbers would not have done better to have dismounted and received their opponents with a fully-developed fire from their carbines, or whether the Northern cavalry, having two brigades to one of the enemy, would not also have been wiser in detaching one of its brigades to a flank to assist the charge of the other by throwing the enemy into disorder with its fire and by picking off the men serving the guns, is a difficult question to answer if the distance at which the two forces came into view of each other—which was 1,000 yards—and the time available to form up for the charge and the longer time required to prepare for dismounted action be taken into consideration. The distance, in the case of the Northern cavalry, which the detached brigade would have had to traverse to a flank, before its fire would have been free from any chance of being masked by the charge of the remainder of the force, would certainly have been prohibitive, and shock action, on the whole, seems to have been the quickest and readiest course and the one promising the surest results under the circumstances. The excellence of the scouting and the reconnaissance of the cavalry of both Armies, and the many sharp dismounted encounters which ensued on their coming in contact is evidence of this arm having taken every opportunity of extracting practical and useful instruction in up-to-date tactics from the manœuvres.

The capture of Raja Kheree was a brilliant enterprise on the part of the third brigade of the Northern force, and an example of what can be effected by a surprise at dawn against a certain locality, the possession of which confers great tactical advantages on the assailant, and to obtain which the failure of a comparatively small body may, as it does not involve a general defeat, be well worth risking. In this instance Raja Kheree was one of the strongest points in the Southern position, and in actual warfare the heavy loss which the development of a deliberate attack against it by daylight would have incurred was avoided.

The country during the first phase of the manœuvres was very little adapted to the use of artillery. Even the field-guns could seldom use direct fire, while that of the 30-pounders and 5-inch guns had to be controlled by observation either from an occasional mound of very moderate elevation and command of view, or else from the balloon, from which signalling is often far from easy in a wind owing to the rotation set up.

During the second phase of the manœuvres the ground was much more favourable in this respect, and a more extensive view frequently made direct fire possible for even the heavier guns.

Another point, however, which seemed to me as unfortunate as it was unavoidable, was the use of black powder in the case of the artillery, which interfered with the effectual concealment of guns and consequently an instructive tactical feature of much importance was lost.

There was no way out of the difficulty, however, for though smokeless powder can be used with rifles without resulting damage, its use with artillery when firing blank has a most destructive effect on the inner lining of the guns. The number of horses to draw the heavy batteries in this country is also an important question, and one which appears not yet to have been settled, it being very doubtful whether the native drivers are capable of extracting the full amount of traction power out of extra teams, and whether, therefore, it is not better to harness the latter by reliefs.

An adequate number of animals is in any case necessary, and a report on the subject was probably called for from artillery commanders on the conclusion of the manœuvres.

Before concluding, we cannot pass over in silence the interesting and historical country in which the manœuvres were held. Panipat, where the first battle of the manœuvres took place, is connected with the wars between the Kauravas and Pandavas of antiquity, and has thrice been the battle-ground on which the fate of India has been decided; for here, in 1526, the Mogul empire was established by the victory of Bábar over Ibrahim Sultan and his 100,000 men; and here in 1556, Akbar defeated the Afghan intruder Sher Shah; and again, in 1761, Ahmed Shah Durani overthrew the Mahrattas under Bhao, Holkar, and Scindia in person.

The scene of the second phase of the manœuvres was even more interesting, and lay amongst those colossal monuments of remote antiquity, which cover 60 miles of land round Delhi, and where relics of the past, in every state of preservation, record the times of Buddhists and of the Turkoman and Mogul dynasties, and of Ala-ud-din of Firuz, the contemporary of Richard II. of England, and Timur, Bábar, and Saftar Jurg. A quaint sight indeed it was to see a modern signalling party of the Southern Army heliographing from one of the balconies of the towering Kutb Minar the movements of the advanced troops of the Northern Army which had temporarily surrounded it.

There must have been few of us who did not come away physically benefited by the healthy life led during these manœuvres, and also improved by a means of instruction which, next to actual warfare itself, is the most practical for a soldier; and there is reason to believe that the experiences derived were quite as valuable as those afforded by the recent French manœuvres in the neighbourhood of Toulouse, the German in the valley of the Oder, or the Russian round Kursk, while the tactics employed were more up-to-date than in those operations.

## CAMPAIGNS AGAINST INDIA FROM THE WEST AND THROUGH AFGHÁNISTÁN.

*Translated and condensed from the Russian of Major-General L. N.  
Soboleff, by Lieut.-Colonel W. E. GOWAN, Retired, Indian Army.*

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(Continued from May JOURNAL, p. 587.)

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AS soon as Bábar heard of the fall and death of his Uzbek rival, Sheibáni-Khán, he proposed an alliance with Sháh-Ismail. This alliance was concluded in the year 1511 A.D., upon which Bábar, at the head of a considerable force of Persians, Badakhshánis, and Afgháns, crossed the Amu-Daria (Oxus), and occupied, almost without opposition, Samarkand, Hissár, Bukhára, and other towns. But this triumph was short-lived, for there appeared an avenger for Sheibáni-Khán in the person of his talented nephew, Obeidullah, who, in the year 1512 A.D., retook Samarkand, and utterly defeated Bábar's mixed forces. Bábar himself had to flee to the Amu-Daria, where he was joined by a Persian force at Termez.<sup>1</sup> The united forces once more advanced, and soon captured the town of Kárshi, but when the Persian general, in his fanatical hatred towards all *Sunnis*, ordered the whole garrison and all the inhabitants of the town to be slaughtered in cold blood, Bábar, deeply disgusted at this display of barbarism, broke off his Persian alliance and, at the head of a few horsemen, once more recrossed the Hindu-Kush range, and returned to Kábul.

During the three years between 1515 and 1518 A.D., he devoted himself to strengthening his own position, and to the organisation of his army, so that it was not until the end of the latter year that we find him on the borders of Bajaur. Having captured the fort at this place, Bábar considered the event of such importance that he sent notifications on the subject to Badakhshán and Kunduz.

After crossing the mountains, which separate Bajaur from Jandaul, Bábar marched into the valley of Seváda, or the modern Swat, and pitched his camp on the banks of the Panj-Kora river, at the point where the Bajaur river is joined by the Jandaul stream,<sup>2</sup>

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<sup>1</sup> This place served, as we have seen in our description of the campaigns of Chingiz-Khán and of Timur, as a point for the passage of large armies across the Amu-Daria, or Oxus. Termez has, in this respect, a great superiority over Karki, and still more so over other points along the course of this river.—*Author.*

<sup>2</sup> This proves that India can be reached by other routes than those through the Bolán and Khaibar passes.—*Author.*

and not far from the entrance into the Kheráj and Pishgarm valleys. Before sending an expedition into the Panj-Kora district, Bábar made a large requisition of grain from the inhabitants of the Kheráj valley.<sup>1</sup> He then advanced to the village of Mandish, in the centre of the Kheráj valley, where he was met by a Yusafzai deputation declaring the devotion of this tribe.

From this narrative we can conclude that if India can be reached, *viâ* Bajaur and Swat, even in mid-autumn, the same route must be quite practicable in the summer season. We can gather also that as this route lies at a higher altitude, it is not so hot as that of the Khaibar route, and that, in addition to an abundance of the purest spring water, it is well supplied with fuel, forage, and other necessities. It is only during, and after, a heavy fall of snow that this route, through Bajaur and Swat, is for a time impracticable for troops.

Bábar, after proceeding as far as the point of junction between the Bajaur and Panj-Kora rivers, returned to the fort of Bajaur. From here his onward route lay across the high range called Yen-bagir, and thence over a still higher one,<sup>2</sup> and so *viâ* Páni-Máli, Kotlej, and Makám. Early on the 16th of the month *Safar* (corresponding with the middle of November), Bábar's troops came in sight of the river Indus. The next day they made a long march, and encamped at the Hurroo river, to the east of Pesháwar. Another long march brought them to the river Sugán,<sup>3</sup> which they crossed.

This rapid swoop on the Panjáb, skilfully carried out as it was, produced such a deep impression on the natives, that certain of the local chiefs at once declared their allegiance, whereupon Bábar told them that he considered the north-western portion of India as his by right.<sup>4</sup> Not wishing to leave a bad impression of himself in this part of India, Bábar gave strict orders to his troops to take nothing forcibly from the inhabitants.

Bábar's route through the Panjáb lay *viâ* Kaldeh-Kihar, the Gumbat gorge, the town of Bahra, and a place to the west of it on the banks of the Jhelum. Whilst at Bahra, Bábar overran the province of Khusháb. He now considered his successes sufficient to warrant his entering into negotiations with Ibrahim Lodi, Emperor of India. He therefore sent off an envoy, entrusted with letters to the Emperor, and to Daulat-Khán, ruler of Lahore, but, after the lapse of several months, his envoy returned without any answer at all.

Meanwhile Bábar was actively engaged in establishing his authority over those provinces of India which he had already occupied. In the beginning of December, 1518 A.D., he resolved to return for a

<sup>1</sup> This is important in calculating the resources of the countries adjacent to India.—*Author*.

<sup>2</sup> For a description of this route the reader is referred to pp. 481-501 of Grigorieff's *Kabulistán and Káfristán*.—*Author*.

<sup>3</sup> ? Sohán.—W.E.G.

<sup>4</sup> In his *Memoirs*, Bábar records that the descendants of Timur the Great possessed the vast area of the Panjáb, which then included Bahra,<sup>5</sup> Khusháb,<sup>6</sup> Janát, and Janiát.—*Author*.

<sup>5</sup> ? Bhera.—W.E.G.

<sup>6</sup> Probably now known as the Sháhpur district.—W.E.G.

time to Kábul. His route lay through Indarabágh, on the Sugán<sup>1</sup> river, the point of junction between the rivers Kábul and Indus, Pesháwar, the Khaibar Pass, Ali-Masjid, the valley of the Kábul river and Gandamak.

This campaign against India may be described as a brilliantly executed cavalry raid, and for us, Russians, it is important, as it shows *the possibility of penetrating India by a route through Bajaur and Swat, even in mid-autumn.*

Towards the close of January, 1519 A.D., the governor, whom Bábar had left in the town of Bahra, came to Kábul to tell him that the Afgháns and Indians had risen in rebellion, and had driven his troops out of the country. Thus Bábar lost his Indian provinces as quickly as he had gained them, and yet his campaign in upper India had brought him no little good, for, in the first place, he had carried out a reconnaissance on a large scale, which had made him acquainted with the country; secondly, he had set up a party of his own in India, and one which, knowing his character and fitness for government, would wish for his return; and thirdly, he had extended the limits of Afghánistán so as to include the provinces of Bajaur and Swat.

In the end of April 1519 A.D., Bábar carried out an expedition against the Afgháns<sup>2</sup> inhabiting the province of Hardiz to the west of Ghazni. This involved an arduous passage of the range which is the water-parting between the rivers Tarnák and Argandáb. The expedition lasted but five days, during which his troops had to make several long marches, but it was successfully accomplished. In the month of May, Bábar visited the Lughmán valley, and in June marched against the Yusafzais of the Hasht-Nagar<sup>3</sup> district. After passing through the valley of the Kábul and the Khaibar pass to a point below Ali-Masjid, Bábar learnt that the enemy had fled. He then immediately re-crossed the Kábul and Lundai<sup>4</sup> rivers, and turned eastwards, with a view of coercing the Afridis and placing Pesháwar in a state of defence, so as to secure a strongly fortified point facing India. In the month of July, hearing that his enemies had once more invaded Badakhshán, Bábar returned to Kábul *viâ* the Khaibar, Gandamak, and Jagdalak.

The next five years Bábar spent in strengthening his Kábul monarchy, and in organising and training his troops so that the period between the years 1520 and 1525 A.D. may be regarded as the last preparatory stage ere proceeding on his great enterprise against India. His army, although not a large one (about 15,000 of all ranks) was composed of men of established bravery and skill in war, and their discipline was exemplary. When the autumn of the year 1525 A.D. set in, Bábar had reached the age of 47, and most of those years had been spent in military service. Although within this period he had lost his own inheritance, he had conquered Kábulistán and had established a secure base of operations against India.

<sup>1</sup> Sohán.—W.E.G.

<sup>2</sup> From the time of Máhmud of Ghazni, the Afgháns constituted the governing class of India.—*Author.*

<sup>3</sup> Now a *tahsil* (revenue collecting centre) of the Pesháwar district.—W.E.G.

<sup>4</sup> Name of the joint Panj-Kora and Swát rivers.



On the 1st of the month *Safar*, 932 of the *Hijra*<sup>1</sup> (corresponding with the 17th November, 1525 A.D.), Bábar marched at the head of his army for the final subjugation of India. After passing the height called Yak-Langah,<sup>2</sup> he pitched his camp to the west of the Yakúb stream, and on the second day reached Badám-Chashma. On Friday, the 8th, Bábar himself reached Gandamak, and on the next day arrived at Bágh-i-Wafa, where he awaited the arrival of his other troops, under the personal command of his son, Humáyun. On the 17th of the same month the united forces marched forward and pitched camp in a garden between Sultánpur and Khwája-Rustam. On the 26th of the month above-named, Bábar's army, proceeding *viâ* the Khaibar and Bekráam (Peshawar), reached the banks of the Indus, and on the 1st of the month *Rabi-ul-Awal*, it crossed that river and then the Hurroo,<sup>3</sup> and pitched camp on its southern bank.

The river Jhelum was crossed by a ford just below the town of that name. Two days' march brought Bábar's troops to the banks of the Chenáb, and so to Sialkote,<sup>4</sup> which was reached on the 14th of the month last-mentioned. Bábar's onward route hence lay through Kilanúr.<sup>5</sup> He made the passage of the Beás river at a point opposite Kanwáhin, and thence advanced to the fort of Milwat,<sup>6</sup> to which he laid siege. After possessing himself of this place and of all the fortified points in the Dún, Bábar pitched his camp at Rupur on the Sutlej. His next halting-place was at Keril, opposite Sirind.<sup>7</sup> Two more marches brought his troops to the banks of the river Banúr and Sanúr, where camp was pitched. Here Bábar received the news that the Emperor of India was by this time to the north of Delhi,<sup>8</sup> and that he was accompanied by the military governor of Hissár-Firúza.<sup>9</sup> On receipt of this intelligence Bábar pushed forward two advanced parties, one in the direction of the enemy's main body, the other towards Hissár-Firúza, under the command of his son Humáyun. Bábar's main body marched out of Umballa on the

<sup>1</sup> This Arabic word signifies "departure," from *hajara*, "to forsake." Hence it is the name given to the Muhammadan era, marking the date of Muhammad's departure from Mecca, which took place on the night of the 15th July, 622 A.D.—*Anglo-Indian Dictionary*, by George Clifford Whitworth.—W.E.G.

<sup>2</sup> A hill crest, on the way to But-Khák.—*Leyden & Erskine*.

<sup>3</sup> Called by Bábar the Kach-Kote.—*Leyden & Erskine*.

<sup>4</sup> Sialkote, a place from 30 to 35 miles east of the town of Wazirábád, on the Chenáb.—*Author*.

<sup>5</sup> About half-way between the Rávi and the Beás.—*Leyden & Erskine*.

<sup>6</sup> South of the Beás river. This fort, after being besieged by Bábar's troops, was surrendered by Daulat-Khán on January 5th, 1526 A.D.—*Leyden & Erskine*.

<sup>7</sup> At one time a place of great importance. North Latitude 30° 26', East Longitude 76° 30'.—*Leyden & Erskine*.

<sup>8</sup> Bábar's camp at Banúr, to the north of Umballa, was approximately 150 miles from Delhi.—*Author*.

<sup>9</sup> Hissar-Firúza lay about 90 miles to the west of Delhi and 113 miles from Umballa.—*Author*.



13th of the month *Jamádi-al-Awal*, in the direction of Shahábád, where he learnt that Ibráhim Lodi was moving slowly forward, making marches of from 2 to 4 miles only each day, and frequently halting for two or three days at a time. Bábar accordingly made a double march, and pitched his camp on the banks of the Jumna, opposite to Sirsáweh. Thence having made two marches down the river, he learnt that the Emperor Ibráhim, with a force of 6,000 men, had crossed into the Doáb. Hereupon, Bábar directed his left wing to cross the river, and attack the enemy. At dawn, on the day following, the Indians appeared in sight. The result of the engagement which followed was that Bábar's left wing reached the heights on which the Indian Emperor's camp had been pitched, and killed the general in command, and captured another. A reconnaissance<sup>1</sup> of the enemy's main body having convinced Bábar of his great numerical inferiority, he resolved to take up a defensive position at Pánipat (about 53 miles north of Delhi and 20 south of Karnál), and to there await the advance of the enemy.

On the 8th of the month *Rajab*, Bábar having received news of the advance of the Indian forces in great strength, he made the following dispositions for battle:—His right wing he placed under the command of his son, Humáyun, his left under Muhammad-Sultán Mirza, his right centre under Chin-Taimúr. Khusrau Gokultásh commanded his advanced troops, and Abdul Aziz Mir Akhur (Master of the Horse) was in charge of his reserve. At either flank of his two wings bodies of Mongols were placed, with the object of carrying out a turning movement<sup>2</sup> as opportunity offered. The Indian army rapidly advanced, but, on finding itself confronted by Bábar's well-disposed battle array, perceptibly wavered. This indecision was immediately detected by Bábar, who directed his two flanking parties to work round to the enemy's rear, whilst he led his right and left wings to a frontal attack. The fight raged from early morn till noon, when the Indian army was finally routed, 16,000 of its number being slain, including the Emperor Ibráhim Lodi himself.

This decisive engagement at once opened out the way to Bábar to the throne of the Indian Empire, and he lost no time in attempting to secure it, for he at once directed his son, Humáyun, to make a rapid advance on Agra for the purpose of seizing the treasury of the defeated and slain Emperor; and he himself marched straight for Delhi, where he caused the *Khutbah*, or "public prayer for the reigning sovereign" to be pronounced, and his title to be proclaimed as the Sovereign Emperor of India.

For the final consolidation of his sovereignty, there remained for Bábar the subjection of the famous Hindu potentate, Rána-Sanka, a personage who had hitherto contrived to keep himself outside the sphere of Mussulmán supremacy.

<sup>1</sup> Bábar, in his Memoirs, says: "I performed the *Vim*," which is thus described, "the whole army being mounted, the commander takes a bow or whip in his hand, and guesses at the number of the enemy." He goes on to say, "the number that I guessed was greater than the army turned out to be."—*Leyden & Erskine*.

<sup>2</sup> The famous *Tulughma*, an Uzbek method of fighting.—W.E.G.

At this period, there were on the Indian peninsula five large Mussulmán and two Hindu States, not including numerous petty independent or semi-independent principalities, devoid of any special political or military importance. Of the Mussulmán sovereignties, the most powerful was that of the Afgháns, which comprised the Panjáb, Delhi, Agra, and Oude (also called the *Purab*, or East). This sovereign bore the title of "The Emperor of India." The second sovereignty was that of Gujerát. The third was that of the Deccan. The fourth was that of Málwa (or Mándu), and the fifth that of Bengal. Of the Hindu sovereigns, the two most notable were the Rajah of Bijnágar and the already-mentioned Rána-Sanka.

Thus the fact of India being parcelled out into numerous sovereignties, when Bábar entered upon his final campaign against her, of course considerably facilitated his task of conquest. Bábar's first blow had been directed against the Afghán sovereignty, at the head of which was, as we have seen, the Emperor, Ibráhim Lodi. Although the battle fought at Pánipat had decided the fate of this sovereign, and although Bábar had occupied Delhi and Agra in succession, and had caused himself to be proclaimed as "Emperor of India," there were still many fortified points, the garrisons of which had not accepted the new rule, and these, moreover, were prepared to offer resistance. Thus there were Dholepore and Gwalior, 20 miles and 67 miles respectively, to the south of Agra; Biána, about 47 miles; Etáwah, 70 miles, Sambhal, 120 miles to the west, south-east, and north respectively of the same place; Kálpi, 134 miles to the south-east of Delhi. Moreover Hassan-Khán, the ruler of Mewát, to the north-west of Agra, had declared himself especially hostile towards Bábar.

The new Emperor, therefore, used every endeavour to draw to his side persons of note under the banners of the deceased Emperor, Ibráhim Lodi, and his exertions to this end were often crowned with success. Thus, by sending a conciliatory letter addressed to the officers and soldiers of the garrison of the fort of Koel, 53 miles, to the north-east of Agra, 3,000 men were induced to join the standards of the new Emperor.

But whilst Bábar was annexing places and gaining adherents in the Panjáb, and what is now known as the North-Western Provinces of India, changes were taking place in Gujerát, which had a powerful influence on the fate of this Muhammadan State. Sultán Muzaffar died, and was succeeded by his son, Bahádur. "He," to quote Bábar's words, "showed himself to be a bloodthirsty young man without conscience and without shame."

The outcome of such circumstances, coupled with the exercise of prudence, enabled Bábar to soon gain the respect of all his Mussulmán foes, so that there then remained only the task of crushing Rána-Sanka, after which he could count upon the firm consolidation of his rule over the entire continent of India.

In his Memoirs, Bábar makes no mention of the strength of his own army, but he minutely describes the strength and composition of his opponents' forces. Thus he tells us that Rána-Sanka placed on the field of battle 205,000 men, 100,000 under his personal command, and 105,000 under that of his allies, including 10,000 men led by Sikandar, son of Ibráhim Lodi. The ruler of Mewát was also amongst the number of Rána-Sanka's allies.

The final struggle took place in the neighbourhood of Agra.<sup>1</sup> Bábar took up a position near to Biána, at a distance of about 3 miles from the enemy's line of advance. In front of the centre of his army he placed a line of wagons, and between these his artillery and infantry were drawn up. The latter had percussion muskets. Bábar remained with the centre, having on his right Chin-Taimúr, one of his best generals, and on his left Ala-Ad-Din (Alam Khán), son of Sultán Behlul-Lodi. The right wing of the army was commanded by Bábar's son, Humáyun, his left wing by Syed-Mehdi-Khwája. As in the case of his fight with Ibráhim Lodi at Pá nipat, Bábar placed bodies of Mongols on his outer flanks, with directions to make turning movements on the enemy's flanks.

Bábar's troops had hardly taken up the several positions which they were to occupy when Rána-Sanka hurled his entire army on his enemy, his left wing fiercely attacking the Mussulmán right, to the aid of which Bábar immediately sent a portion of his right centre division, under the command of Chin-Taimur. This movement was successfully carried out, and the Hindu attack in this direction was beaten back. Meanwhile Bábar's left flanking party had succeeded in getting to the enemy's rear. In spite of this, however, the Hindus continued to obstinately attack the Mussulmán left wing, so that Bábar was obliged to reinforce it with his left centre division. At the very height of the battle, Bábar extended his personal escort as a reinforcement to both his wings, and to clear the way for the guns and muskets in his centre. As Rána-Sanka's army had no such armament, these fire-arms had a terrible effect, for the Hindu coats of mail were no protection against the Mussulmán missiles. Bábar now directed a general advance, and succeeded in driving back both his enemy's wings upon their centre, so that their dense masses were soon trampling each other down, and the ranks of the Hindus were completely and finally broken. They soon lost all semblance of a fighting formation and began to retreat. Rána-Sanka's loss was enormous, and amongst the slain was the ruler of Mewát. Rána-Sanka's overthrow, which took place in the year 1527 A.D., was complete.

The position of "the Great Mogul," as the conqueror of Ibráhim Lodi and of Rána-Sanka, was now so strong that he was able to devote his full attention to the setting up of an administration in his newly-acquired territories. To enable him, however, to fully effect this, it was necessary that he should obtain possession of the strong fort of Chandéri, in Málwa, situated at a distance of 135 miles to the south of Agra. This fort was at this time in the hands of Medini-Rao, and its garrison consisted of from 4,000 to 5,000 men. Bábar's route between Agra and Chandéri was as follows: Jalesar, 5½ miles; Anwar, along the Jumna to Chandwár; the Kinár ford; Katchwa; the Barhánpur river; Chandéri, 5½ miles.

<sup>1</sup> Professor Stanley Lane-Poole calls this decisive engagement "the Battle of Kanwáha," but Mr. H. G. Keene, the well-known writer on "The Turks in India," etc., says: "his (Bábar's) great and decisive battle with the Rájputs took place near Sikri" (this place is better known as Fattelpur-Sikri.—W.E.G.). On page 373 of the English version of Bábar's Memoirs is the following passage bearing on the site of this battle: "On Sunday night, June 30th, 1527 A.D., I proceeded to Sikri to keep the Feast (*Ramazán*) there. A stone platform was erected on the north-east of 'the Garden of Victory,' etc.—W.E.G.

The town of Chandéri was built on a hill, and it had a citadel which was strongly fortified; the town itself was also entirely encircled by a wall.

On the 6th of the month *Jamádi-al-Awal*, Bábar resolved to take the fort by a frontal attack, and by evening his troops had gained the outer wall without much resistance. Meanwhile the garrison withdrew to the citadel, where the Hindus met the besiegers with showers of stones and some peculiarly inflammable composition; but the brave Moslems never wavered, and at length the citadel was gained and every one of the garrison was put to the sword.

After appointing his own governor at Chandéri, and leaving there a garrison of 3,000 men, Bábar re-crossed the Jumna, and on the 6th of the month *Jamádi-al-Akhir* (corresponding with the 27th February, 1528 A.D.), pitched his camp on the right bank of the Ganges.

The measures adopted by Bábar for the successful passage of this noble river indisputably merit our attention, for they reveal in Bábar the talents of a great commander. He first of all secured about 40 boats and the requisite material for a bridge. The place which he chose for the passage of the river was at a point where an island divides the main channel. Here Bábar mounted a large cannon, and to the left of the bridge of boats he threw up a redoubt, which he garrisoned with men armed with muskets. On the island, and to the right of the bridge, he placed smaller cannon mounted on carriages. *Thus the passage of the river was under artillery and musketry fire from three sides.* We should, of course, bear in mind that this occurred in the year 1528 A.D., in an uncivilised part of the continent of Asia, and that as early as the beginning of the XVIth century, Bábar, as though he were the most advanced artilleryman, most carefully superintended the casting of cannon of large calibre.

As soon as his bridge of boats was ready, Bábar pushed across a strong reconnoitring party, which was met by the enemy's main body and compelled to retire, whereupon Bábar advanced his centre and right wing, and drove back the enemy. The next day intelligence came in that during the night the enemy had fled. Having conveyed his whole army across to the left bank, Bábar ordered a strong detachment, under the command of Chin-Taimur, to follow in pursuit. Within six days of his passage of the Ganges, Bábar's forces had crossed the Gumti and were within two marches of Oude and the river Siru,<sup>1</sup> where he learnt that the enemy, under Sheikh-Báyázid, had taken up a position. On the 7th of the month *Rajab*, Bábar halted at the point of junction of the rivers Siru and Gogra, and from there he sent a reinforcement of 1,000 men to Chin-Taimúr, who had at that time received a letter from Sheikh-Báyázid asking him to open negotiations. Chin-Taimur, perceiving that this proposal was probably only a ruse to gain time, advanced his troops across the river Siru, whereupon Sheikh-Báyázid's forces fled in every direction.

Thus Bábar's campaign in Oude terminated. Being skilfully planned, it was concluded in less than two months, during which his main body had marched from Chandéri into Oude, a distance of more

<sup>1</sup> Siru, or Sirwu, or Sirju. This is the name given to the Gogra after it has been joined by the Sirju above Oude. Bábar, however, in his Memoirs, applies the name to the joint stream until it falls into the Ganges.—*Leyden & Erskine.*

than 400 miles, whilst his various outlying detachments had probably covered, within the same space of time, not less than 530 miles. Within this brief period Bábar had directed the passage of his army across two large rivers, the Jumna and the Ganges.

Bábar now entered with surprising energy upon the reconstruction of the provinces which he had conquered, as well as into all military matters, for *he fully recognised that a properly organised regular army is the principal weapon of offence and defence to which the Sovereign of a vast Empire must ever trust in the preservation of his possessions.* By a wise choice, too, of Ministers and Viceroys, he secured a beneficent and peaceful administration of his diversely populated provinces. Whilst thoroughly trusting such persons, he carefully watched them, and saw that they did their duty by him and also by the people committed to their charge. Further, he never totally disregarded the opinion of wise and experienced officials, whose knowledge was necessarily gained through toil and labour acquired on the spot, and, before deciding upon undertaking any difficult enterprise, he would convene a council and, in the majority of instances, he would act according to the decision which might be arrived at at such a council. Mistakes, or rather errors of judgment, he freely forgave and forgot. The conduct of foreign policy he kept firmly in his own hands, and he directed it towards the consolidation of that vast monarchy which his own genius had created. He, moreover, always acted in accordance with a plan which he had well thought out beforehand, and when peaceful negotiations did not bring about the wished-for result, he never hesitated to resort to war. It was by means of negotiations, alike honourable to both parties, that Bábar acquired from the sons of the fallen Hindu potentate, Rána-Sanka, the towns of Rantampur,<sup>1</sup> Chitor, and Biána (the strategical importance of which he fully recognised), and he thus secured a stable frontier on the southern limits of his possessions in the centre of India. The north-western confines he had already made secure by holding Afghánistán, where his son, Humáyun, held sway in his name.

It was about this time that Bábar addressed to Humáyun a letter,<sup>2</sup> which is, in many respects, of extreme interest.

"Salutations to Humáyun, whose name I can never pronounce without the warmest wishes that I may again see him. . . . We thank God, Who has bestowed upon Us, thee, O son! And Who has made this slave the object of His benign love. May the Most Highest always accord to me and thee feelings of such extreme joy. Thou hast given to this slave the name of *Al-Aman*, 'The Noblest' (or, perhaps it may be read *Al-Aman*, 'The Faithful')—*may God bless him*—but the common people more often pronounce this name *Alaman* (signifying 'a robber'). But, however it be, may God bless the name and the humble individual who bears it. May the Almighty give to me and thee long years of life and may He shower upon *Al-Aman* all possible blessing. The Most Highest, in His great and exceeding mercy, has granted to Our affairs such success as We have

<sup>1</sup> Rantambor (Bijnagar) lay to the west of Dholpúr and to the south-east of Jaipur; Chitor was the former capital of Udaipur; Biána lay to the south-west of Agra.—*Leyden & Erskine*.

<sup>2</sup> For the full text see *Mémoires de Bábar (Zahir-éd-Din-Muhammad)*, Vol. II., p. 362.—*Author*.

never seen in the record of any one during the ages preceding Our own time.<sup>1</sup>

"If God sees fit to call upon thee to do so, make a sacrifice of thyself, and fall, bearing arms. Slacken not in the display of resolute ardour, for unconcern and sloth are incompatible with the attainment of the position of an autocratic sovereign. The desire to attain success does not conform with the habit of delay. The world belongs to Him who can hasten on events. . . .

"The great people of this world should be possessed of lofty feelings and aspirations, and I fully hope that between Kamrán (Bábar's second son) and thyself excellent relations will always prevail. As regards Kamrán, he is a young man of good propensities, and of a noble nature. He will, therefore, lose no opportunity of showing due respect to thee, or of affording thee all assistance. . . .

"To leave yet one thing undone is not right for a sovereign. There are no heavier chains than the chains of an autocracy. . . . In future, endeavour to write more naturally, and in clear and simple phraseology, as the labour in so doing will be less for thyself, and also for those who may have to read thy letters. . . .

"Never break through the rule of keeping thy forces concentrated about thee." . . .

But whilst Bábar laboured to organise a strong foreign policy, he was no less active in looking after the home affairs of his empire. He turned his especial attention towards the construction of durable and useful buildings, and to the laying out of gardens, which are so necessary in a country having, for the greater part of the year, a hot and trying climate. He also organised a regular postal service between Agra and Kábul.

On the 19th of the month *Rabi-al-Akhir* of the *Hijra* (corresponding with the 1st January, 1529 of the Christian era), Bábar received the news that the people of Bengal had declared their adherence to his cause. This news was very important, because a peaceful attitude on the part of the people of Bengal secured the quiet of the eastern frontiers of the Purab. But about the same time Bábar received the intelligence that Sultán Máhmud, son of the deceased Emperor Iskandar, had taken possession of Behár.

It will suffice for the purposes of this narrative to here record that Bábar, who left Agra, at the head of his army, on the 17th of the month of *Jamádi-al-Awal*, was at Dakdaki,<sup>2</sup> on the banks of the Ganges, in exactly one month's time, having marched meanwhile a distance of 255 miles, with a baggage train and artillery, the order of march being so arranged that as his army advanced, its numerical strength increased.

Bábar's further campaigning in the delta of the Ganges proved him to be a very powerful swimmer. Thus we read in his Memoirs:—"On the 25th of the month *Jamádi-al-Akhir*, after a march of about

<sup>1</sup> Bábar had, indeed, achieved a success greater than that of Alexander the Great, of Attila, of Caesar, of Máhmud of Ghazni, Chingiz-Khán, of Tamerlane, and of all such great conquerors of the world.—*Author*.

<sup>2</sup> A *Pergunnah* (sub-division) of Karrah or Currah, below Manikpur.—*Leyden & Erskine*.



11 miles, the army reached Siruli.<sup>1</sup> The next day brought us to Allahábad—the point of junction of the rivers Jumna and Ganges. At this point I swam the entire breadth of the united rivers, and then, without resting on the opposite bank, I swam back again. On the 23rd of the month *Rajab*, when the army was at Chuseh,<sup>2</sup> I swam across the Ganges near the mouth of the river Karamnasa. *I never lost an opportunity of swimming across any river that might be met with in the course of a campaign.*"

Such exploits may, perhaps, give the key to the riddle of successes that were so unusual in the history of Asia.

(*To be continued.*)

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<sup>1</sup> Not to be found on the map.—W.E.G.

<sup>2</sup> Probably Chowsár.—*Leyden & Erskine.*

#### Errata in Text of "Campaigns Against India."

April No.—Page 442, line 10 from the bottom of the text—

for "Khelát-Ghilzai" read "Kalát-i-Ghilzai."

May No.—Page 583, line 4 from the top of the text—

for "Chabár-Bágh" read "Chahár-Bágh."

„ „ Page 587, line 19 from the top of the text—

for "Pedishah" read "Pádishah."



## RIFLE PRACTICE TARGETS, AND A SUGGESTION.

By Staff Surgeon C. M. BEADNELL, R.N.

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SCARCELY three years have elapsed since "the man behind the gun" was the cynosure of thousands of anxious eyes. But very recently the rifle in front of the man found levelled at it a not inconsiderable amount of criticism. We propose in this monograph to offer a few suggestions relative to the "target in front of the rifle."

The conformation of the modern target and the system at present in vogue of marking hits upon it, are they based on scientific principles? Are they compatible with the best possible scoring results?

First, as to the shape of the *marking surface* on the target; this is rectilinear—an oblong or square—never circular; consequently all parts of the periphery of the marking surface are not equidistant from the centre, and hence a man who puts a bullet through a corner of the target, as at *E* (Fig. 1), scores two marks, whilst his comrade, who just misses the top edge, as at *F*, scores a zero, *albeit his bullet has cut the plane of the target several inches nearer the bull's-eye.*

In Fig. 1, *QEYV* represents a first-class target, *uts* being the outer margin of the "inner," and *xvz* the margin of the "bull." The black dots represent hits or misses as the case may be. Now, owing to the rectilinear periphery of the marking surface, there have only been five hits, *ABCDE*, making a score of 14 out of a possible 40 or 35 per cent. When we come to examine the misses, we find that the shot *R* is equal in accuracy to the shot *E*, both being equi-distant from the "bull's" centre, whereas the shots *FHMP* are notably superior to it. Yet none of these shots is allowed to count.

Around the rectangular figure *QEYV* circumscribe the circle *KGL*, and let this circle represent the edge of the "outer." The man's score now reaches the much more satisfactory total of 24 out of a possible 40 or 60 per cent!

Assuming that the reader yields to our contention that the circular shape of the *marking surface* on the target is the more desirable, we will proceed to take up the second part of our essay.

By the present system of marking hits, the man who shaves the edge of the "bull" obtains the same number of marks as he who puts his bullet through its centre. In other words, it has to be admitted that the best possible shot and the shot with an error of 18 inches are classed as equal.<sup>1</sup>

Similar remarks apply to the "inner" and "outer."

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<sup>1</sup> The diameter of a first-class bull's-eye is 3 feet.

In Fig. 2 we have graphically delineated the scores of two men, whom we will designate "Black" (●) and "White" (○).

A glance at the diagram shows "Black's" shooting to be uncontestedly the better of the two, yet by the present method of assessing hits both obtain the same number of marks; thus "Black" scores three "bulls," *a, b, c*, three "inners," *d, e, f*, and four "outers," *g, h, l, m*. "White" scores three "bulls," *P, Q, R*, three "inners," *T, S, U*, and four "outers," *W, X, Y, Z*. The total score of each thus being 29 out of a possible 40, or 72·5 per cent. Now a system of marking that does not differentiate between the man who religiously plumps his missiles through or near the dead centre of the "bull," and he who persistently hovers around its edge, is surely wanting. Sufficient incentive is not given to men to *work inwards*. The remedy is obvious. Let the value of hits increase with a more uniform rate of progression from the circumference of the marking surface to the centre.

In Fig. 2, let us suppose the radius of the "outer" circle to be divided into one hundred equal parts, and let us describe a circle<sup>1</sup> having the same centre—the centre of the "outer" circle—through each one of these divisions. Our target is now represented by one hundred circles, and a similar number of intervals. Let the outer interval between the two outermost circles be marked 1, that next it 2, and so on to the central space marked 100. Let the bullet apertures in the target correspond in valuation to these intervals; thus, a bullet through the outermost interval to score 1, one through the medium interval 50, one through the central 100. We now possess a very fair marking surface. (See Fig. 3.)

We saw above that, by the system hitherto in use of marking hits, "Black" and "White" each score 29 out of a possible 40, or 72·5 per cent. Marking each man according to the system just detailed, we find the respective scores to read as follows:—

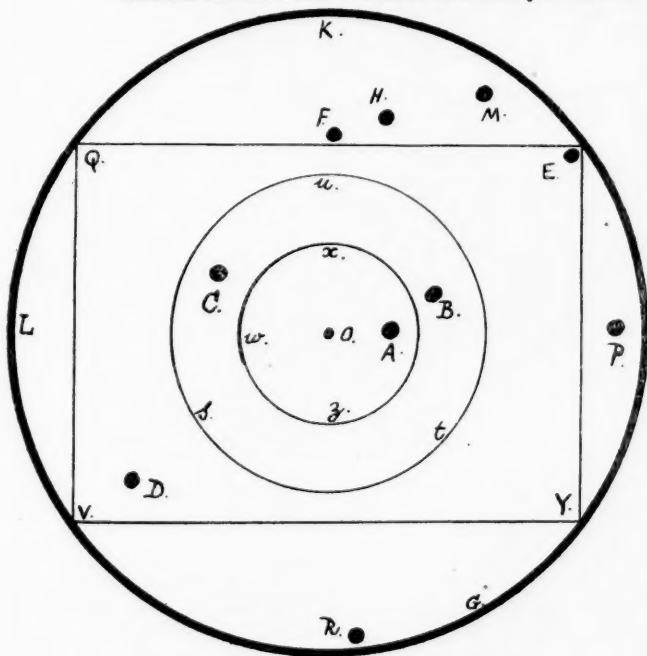
"BLACK."		"WHITE."	
<i>a</i> .....	100	<i>P</i> .....	70
<i>b</i> .....	98	<i>Q</i> .....	69
<i>c</i> .....	89	<i>R</i> .....	66
<i>d</i> .....	65	<i>S</i> .....	49
<i>e</i> .....	65	<i>T</i> .....	45
<i>f</i> .....	64	<i>U</i> .....	49
<i>g</i> .....	42	<i>W</i> .....	3
<i>h</i> .....	40	<i>X</i> .....	3
<i>l</i> .....	44	<i>Y</i> .....	3
<i>m</i> .....	43	<i>Z</i> .....	3
Total ...	650	Total ...	360

Thus "Black's" score totals up to 650 out of a possible 10 x 100, or 65 per cent.; "White's" total is but 360 out of the possible 1,000, or 36 per cent. Thus, "Black's" shooting turns out to be 29 per cent. better than "White's."

<sup>1</sup>In the diagram many of the circles are omitted for the sake of clearness.

In actual practice such an extreme condition as we have described would, though possible, be improbable. Nevertheless, it is certain that, as matters now stand, many scores are not what they seem. In conclusion, we suggest that:—

1. A circular *marking surface* be substituted for the oblong, or square *marking surface*, now in use.
2. This circular *marking surface* be divided into ( $N$ ) concentric circles, at equidistant intervals. The hit-valuation of each interval to increase with uniform progression, from without inwards. A hit upon the boundary (circle) between two intervals to reckon as the major interval.



*Explanation of Fig. 1.*

O. Centre of "bull's-eye."

*xwz.* Circular periphery of "bull's-eye."

*uts.* Circular periphery of "inner."

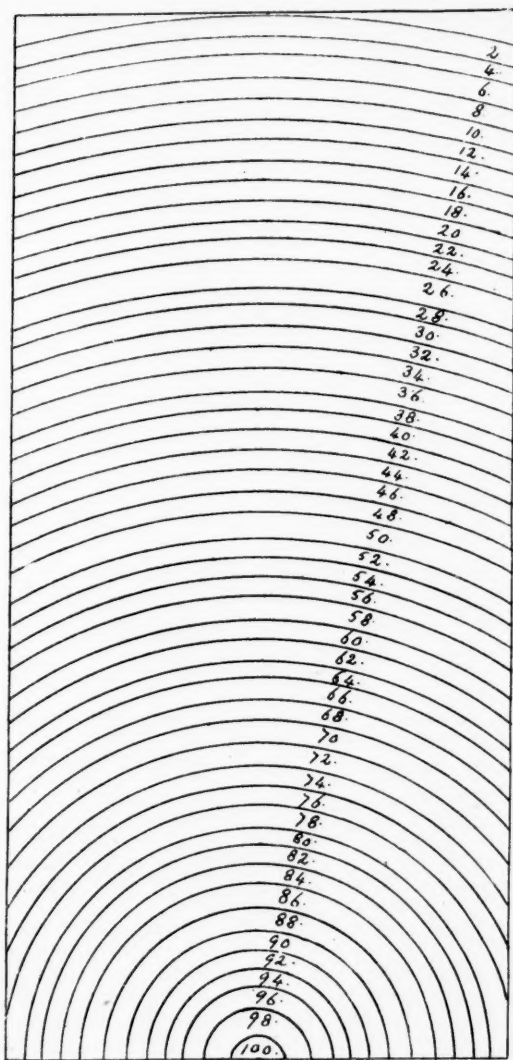
**QEYV.** Rectilinear periphery of the "outer" at present in use.

*KGL.* The suggested circular periphery of the "outer."

Above score, as reckoned by the present system:—One "bull," *A*; two "inners," *B, C*; two "outers," *D, E*; five "misses," *F, H, M, P, R*. Total, 14, out of a possible 40, or 35 per cent.

Above score, as reckoned by the proposed system:—One "bull," *A*; two "inners," *B, C*; seven "outers," *D, E, F, H, M, P, R*. Total, 24, out of a possible 40, or 60 per cent.





*Explanation of Fig. 3.*

Section of suggested target. The numbers show the hit valuation of each interval. Scale,  $\frac{1}{8}$  inch = 1 inch.

## THE ORGANISATION OF THE FRENCH DÉFENSES MOBILES, 1903.

Translated from "Le Yacht."

A MINISTERIAL decree of the 1st April, 1902, directed a complete re-organisation of the *Défenses Mobiles*, both at home and abroad, but divers causes have interfered to prevent its having been carried out in its entirety. For one thing, there are not as yet ready sufficient first-class torpedo-boats; the cadres of pilot-coxswains are far from being complete, while, as so often happens, some of the regulations which work out satisfactorily in theory, by no means do so in practice.

There has consequently been unavoidable delay, but considerable progress has been made, due in a great measure to the energy with which Vice-Admiral Fournier has thrown himself into the work of re-organisation, and that a large number of new torpedo-boats have been commissioned for service during 1902. The composition of the different *Défenses Mobiles* is now as follows:—

*1st Arrondissement.*—There are two important centres for the *Défense Mobile*, Dunkerque and Cherbourg.

1. *Dunkerque.*—In commission—The torpedo-boat destroyer "Durandal"; the armoured gun-boat "Cocyte" (with a special complement); 3 first-class, and 3 second-class torpedo-boats for exercising purposes.

En Disponibilité.—Category A.—Six first-class torpedo-boats, and a divisional torpilleur de haute-mer, the "Archer."

In Reserve.—Category A.—Two first-class torpedo-boats. Category C.—One second-class.

2. *Cherbourg.*—In commission.—The torpedo-avisos "Sainte Barbe" (senior officer); 2 first-class torpedo-boats, Nos. 164, 166, for training the pilot-coxswains; 1 torpilleur de haute-mer, the "Zouave," and 1 second-class boat for training stokers; 2 first-class and 4 second-class torpedo-boats for exercising purposes.

En Disponibilité. One divisional torpilleur de haute-mer, the "Grenadier." Category A.—Twelve first-class torpedo-boats.

In Reserve.—Four first-class torpedo-boats. Categories B and C.—Five first-class and 5 second-class torpedo-boats; 1 second-class torpedo-boat in commission for special service with the submarines.

*2nd Arrondissement.*—There are four centres for the *Défense Mobile*, Saint Servan, Lézardrieux, Laberwrach, and Brest.

1. *Saint Servan.*—In commission—Two first-class torpedo-boats, and 1 torpilleur de haute-mer, the "Défi," for exercising purposes.

2. *Lézardrieux.*—One dépôt hulk, the "Rhin."

3. *Laberwrach.*—One dépôt hulk, "Obligado."

4. *Brest.*—In commission—The torpedo-avisos "Salve" (senior officer); 2 first-class torpedo-boats for training the pilot-coxswains; the



torpilleurs de haute-mer "Véloce," "Corsaire," and a second-class boat for training stokers and the naval school, and 6 second-class torpedo-boats for exercising purposes.

*En Disponibilité.*—Two divisional torpilleurs de haute-mer, the "Lancier" and "Audacieux," Category A.—Six torpilleurs de haute-mer, "Trombe," "Siroco," "Mistral," "Simoun," "Typhon," "Dauphin," and 6 second-class boats; in addition, 2 torpilleurs de haute-mer, "Aquilon" and "Tourbillon," with 2 first-class boats as relief boats.

*In Reserve.*—Categories B and C.—Six first-class torpedo-boats, 5 second, and 1 third.

*3rd Arrondissement.*—There are two centres, Lorient and La Trinité.

1. *Lorient.*—In commission—The torpedo-aviso "Lance" (senior officer); 1 first-class torpedo-boat for training the pilot-coxswains, and 3 second-class torpedo-boats for exercising purposes.

*En Disponibilité.*—One torpilleur de haute-mer, the "Mangini," and 6 first-class torpedo-boats of Category A.

*In Reserve.*—Category A.—Two first-class torpedo-boats. Category C.—Two second-class boats.

2. *La Trinité.*—A dépôt hulk, the "Crocodile."

*4th Arrondissement.*—One central station, Rochefort.

1. *Rochefort.*—In commission—The torpedo-aviso "Couleuvrine" (senior officer); 3 second-class torpedo-boats for exercising purposes.

*En Disponibilité.*—One divisional torpilleur de haute-mer "Grondeur." Category A.—Six first-class torpedo-boats.

*In Reserve.*—Category A.—Two first-class torpedo-boats. Categories B and C.—Two first-class, and 2 second-class boats.

*5th Arrondissement.*—There are three central stations, Toulon, Port Vendres, and Corsica.

1. *Toulon.*—In commission.—The torpedo-aviso "Dragonne" (senior officer); the torpilleur de haute-mer, "Sarrazin," and 1 first-class torpedo-boat for the school of pilot-coxswains; 2 torpilleurs de haute-mer, "Argonaute" and "Tourmente," for training stokers, and 6 second-class boats for training purposes.

*En Disponibilité.*—One destroyer, the "D'Iberville"; a divisional torpilleur de haute-mer, the "Flibustier." Category A.—Six first-class boats, and 6 torpilleurs de haute-mer, the "Borée," "Tramontane," "Bourrasque," "Rafale," "Forban," and "Chevalier," the four first being quite new vessels, and among the fastest of their class.

*In Reserve.*—Category A.—Two torpilleurs de haute-mer, the "Coureur" and "Mousquetaire." Categories B and C.—Sixteen first-class, 11 second-class, 5 third-class torpedo-boats, and 4 torpedo-vedette boats; 5 second-class and 1 third-class boats are further attached to the torpedo-school, and a torpedo-vedette boat for service with the submarines.

2. *Port Vendres.*—A dépôt hulk, the "Faune."

3. *Corsica.*—In commission—The torpedo-aviso "Lévrier" (senior officer); 5 first-class torpedo-boats, and 1 second-class.

*En Disponibilité.*—One divisional torpilleur de haute-mer, the "Cyclone." Category A.—Six first-class torpedo-boats.

In Reserve.—Category A.—Two first-class torpedo-boats. Category C.—Two second-class boats. Dépôt hulks, "Hamelin," at Bonifacio, "Entreprenant," at Bastia.

The *Défenses Mobiles* already organised at stations beyond the home waters are in Algeria, Tunis, and Cochin-China. In the future, however, Diégo-Saurez (Madagascar) and Nouméa (New Caledonia) will be added as stations. A sum of 40,000 francs (£1,600) has already been voted for the purpose, and the "Eure" is to be the dépôt hulk at Nouméa.

*Algeria*.—There are two central stations, Algiers and Oran.

Between both stations are:—In commission—The torpedo-avisos "Léger" (senior officer); 6 first-class torpedo-boats for exercising purposes.

En Disponibilité.—One divisional torpilleur de haute-mer, the "Aigle." Category A.—Six first-class torpedo-boats.

In Reserve.—Category A.—Six first-class torpedo-boats. Category C.—Two first-class boats.

*Tunis*.—Central station at Bizerta.

*Bizerta*.—The destroyer "Casabianca" (senior officer); 1 torpilleur de haute-mer, the "Aventurier," and 1 first-class torpedo-boat for the training of pilot-coxswains for the Tunisian and Algerian Coasts; 6 first-class torpedo-boats for exercising purposes.

En Disponibilité.—Category A.—Six torpilleurs de haute-mer, "Eclair," "Averne," "Turco," "Dragon," "Orange," and "Kabyle."

In Reserve.—Category C.—One first-class torpedo-boat.

*Cochin-China*.—Central station at Saigon.

*Saigon*.—In commission—The destroyer "Takou" (senior officer); 2 third-class boats for exercising purposes.

En Disponibilité.—Category A.—Two first-class torpedo-boats.

In Reserve.—Category C.—Three third-class torpedo-boats.

The above enumeration leads us to hope that during 1903 we shall have at our disposal a considerable number of torpedo-boats of a very different value. The letters A, B, and C, attached to the different categories, show the fighting values of the boats, whatever their class or type may be. The letter A is prefixed to the units with the highest speed, greatest radius of action, fitted in nearly every case with two boilers, and generally two engines, and which may be generally considered perfectly efficient. The letter B is prefixed to all the first-class torpedo-boats, which are already nearly obsolete, with but few exceptions fitted with only a single boiler. In Category C are placed the second and third-class and the worst of the first-class boats.

In principle, the true strength of the *Défenses Mobiles* will lie at the moment of mobilisation in the torpedo-boats in Category A *en disponibilité*. They will be manned by the officers and men from the boats in commission for exercise, and will form the offensive divisions, ready immediately to move at the highest speed to the points threatened on the coast, while eventually they will be attached to the squadrons for distinctly offensive operations. The torpedo-boats in Reserve being employed for the immediate defences of the roadsteads and harbours.

We will now recapitulate, making the necessary deductions, and show what the real force we shall have to depend upon on the outbreak of war, will consist of.

In the 1st Arrondissement, at Dunkirk, there is an offensive division of six first-class torpedo-boats, with the divisionaire "Archer," which is much inferior to them; the presence of the "Durandal" will, however, allow her taking the "Archer's" place.

At Cherbourg there are two offensive divisions each consisting of six excellent torpedo-boats in Category A, with one divisionaire, the "Grenadier." The torpedo-aviso "Sainte Barbe," however good for drill purposes, is quite unfit to take the head of these divisions in war.

In the 2nd Arrondissement, the *Défense Mobile* at Saint-Servan is of but little value; at Brest there are two divisions capable of serious work, each with a divisionaire, viz., five first-class torpedo-boats in Category A, with the "Lancier," and six torpilleurs de haute-mer, with, and similar to, the "Audacieux"; the second division is not, however, properly organised, and there is likely to be a shortage of trained officers. It is reported that the "Yatagan" is to take the place of the "Salve," which will be all to the good.

In the 3rd Arrondissement, the divisionaire "Mangini" will have a division of six torpedo-boats, all in Category A. Besides watching the coast and the Bay of Quiberon in particular, the *Défense Mobile* of Lorient has among its other duties that of protecting Brest against blockade by taking the assailant in rear. Probably, however, in the future this duty may devolve upon one of the offensive divisions of Brest, stationed at Lézandrieux, when that centre is organised, and takes the place of Saint Servan.

In the 4th Arrondissement also there is an offensive force of six first-class torpedo-boats in Category A, with the divisionaire "Grondeur."

In the 5th Arrondissement, the "Flibustier" will head a division of six first-class torpedo-boats in Category A, while the "D'Iberville" will without doubt have charge of the six fastest torpilleurs de haute-mer we have.

In Corsica, Algeria, and Tunis, the organisation is more complete than on the home coasts, as the torpedo-boats for exercise really comprise the offensive division, doubled by the boats in Category A, and as each boat in commission has a sub-lieutenant in addition to the lieutenant in command, there will be enough officers to provide for the two divisions immediately on war breaking out.

In Cochin-China, the numerous creeks, which have to be navigated, necessitate the presence of several third-class torpedo-boats, but there are the "Takou," and two first-class torpedo-boats, available to join the squadron in Eastern waters, and an increase is to be made to their number.

## NAVAL NOTES.

HOME.—The following are the principal appointments which have been made: Admiral—Sir J. A. Fisher, G.C.B., to be Commander-in-Chief at Portsmouth. Rear-Admirals—Sir C. C. Drury, K.C.S.I., to be Second Naval Lord; G. L. Atkinson-Willes to be Commander-in-Chief on the East Indies station. Captains—W. De Salis to "Mersey"; J. M. De Robeck to "Orion"; A. Dodgson to "Warrior"; A. W. Paget, C.M.G., to "Royal Sovereign"; the Hon. W. G. Stopford to "Leviathan"; Sir R. K. Arbuthnot, Bart., to "Victory"; Sir G. J. Warrender, Bart., C.B., to "Hawke"; R. S. D. Cumming, to command of the Scotland Coastguard; E. P. Jones, C.B., to command of the Southern Coastguard District; F. O. Pike, to command of North of Ireland Coastguard; F. F. Fegen, M.V.O., to command Eastern Coastguard District; H. L. Fleet, to command of Western Coastguard District; R. H. Peirse to "Dido." Commanders—The Hon. C. J. Dormer to "Pandora"; E. G. Gamble to "Melampus"; E. H. Moubray to "Sappho"; A. W. Heneage to "Spartan."

Vice-Admiral Sir A. K. Wilson, K.C.B., V.C., hoisted his flag on board the "Revenge" in command of the Home Fleet on the 21st ult. at Portsmouth. Rear-Admiral E. S. Poë, M.V.O., hoisted his flag on the 8th ult. at Devonport on board the "Empress of India," as Second-in-Command of the Home Fleet. Rear-Admiral the Hon. H. Lambton, C.B., C.V.O., hoisted his flag on the 5th inst. at Devonport on board the "Magnificent," as Second-in-Command of the Channel Fleet. Rear-Admiral G. L. Atkinson-Willes, who succeeds Rear-Admiral Sir C. C. Drury in command of the East Indies station, will hoist his flag in the second-class cruiser "Hyacinth," which will relieve the "Highflyer," a sister ship, as flag-ship on the station.

The first-class battle-ship "Camperdown" paid off at Chatham on the 6th ult., and has been placed in the B Reserve as an emergency ship; her officers and crew turned over to the first-class cruiser "Hawke," which was formally commissioned on the same day. The first-class gun-boat "Thrush" arrived at Sheerness on the 6th ult. from the West Coast of Africa and Cape station, and paid off on the 29th ult. at Chatham.

*Steam Trial.*—The armoured cruiser "Monmouth," belonging to the County class, has just completed an interesting series of progressive speed trials to determine the effect of the use of propellers with increased surface and coarser pitch than in the case of the screws tried in the preceding vessels of this class. This vessel is of the length of 440 feet, and has a beam of 66 feet; her displacement is 9,800 tons when loaded to a draught of 24 feet 6 inches. The two sets of triple-expansion engines are supplied with steam from Belleville boilers, and are designed to give 22,000-I.H.P. when running at full speed, with 140 revolutions, and a steam pressure of 250 lbs. The 31 boilers have a collective heating surface of 50,300 square feet, and a grate area of 1,610

square feet. The first trials carried out were the usual contract runs of 30 hours at one-fifth power, 30 hours at four-fifths power, and 8 hours at full power. On all of these trials the results were satisfactory. The figures for the 8 hours' full power run are as follow :—

	Starboard.	Port.
Vacuum ... ..	26.5	26
Revolutions ... ..	140	138
I.H.P. ... ..	11,049	11,140
Collective I.H.P. ... ..	22,189	
Coal consumption ... ..	1.97 lbs. per I.H.P.	

On the four-fifths trial the mean revolutions were 127.8; H.P., 16,320; speed, 21.4 knots. Four runs—two in each direction—were made over the measured mile at speeds of from 10 to 19 knots; and at the higher speeds runs were made over the deep-sea course, with results as follows :—

Revolutions.	I.H.P.	Speed in knots.
60.2	1,750	10.13
77.8	3,585	13.10
101.3	7,860	16.93
113.3	11,066	19
127.8	16,320	21.4
139	22,185	22.8

The weather during the trials was most unfavourable, and, in addition, the hull of the ship was very dirty; so that there is no question that, when it is clean, higher speeds will be realised for the same power. Experience has recently shown that, as in the case of the "Kent," the condition of the hull may affect the speed to the extent of from half to one knot. Particular interest is associated with the comparative results obtained with the different propellers. The screws in the "Bedford"—a sister ship already tried—were of the same diameter—15 feet 9 inches; but in the case of the "Monmouth" the pitch was increased to 20 feet, as compared with 19 feet 2 inches, while the surface was increased to 80 square feet, as compared with 57 square feet. The "Bedford," for 4,522-H.P., had a speed of 14.92 knots; for 16,005-I.H.P. the rate was 22.2 knots, and for 22,457 it was 22.7 knots. The weather, however, and the state of the hull of the "Monmouth," materially militate against any accurate deduction from a comparison of these results. The "Monmouth" was built and engined by the London and Glasgow Shipbuilding Company, Glasgow.—*Engineering.*

*Naval Defence and the Colonial Conference, 1902.*—The following memorandum was laid before the Government and the Colonial Conference by the Minister of Defence for the Australian Commonwealth :—

Department of Defence,

Melbourne, 15th March, 1902.

*Minute to the Right Honourable the Prime Minister as to Naval Defence.*

I have the honour to submit for consideration my views as to the means to be adopted so as to provide for the Naval Defence of Australia.

## I.—PRELIMINARY OBSERVATIONS.

1. It will, I think, be generally conceded that it is the duty of the Commonwealth to adequately contribute to the defence of Australia and of its floating trade. We admit this obligation in regard to our local military defence, but we must remember that naval forces require to be even more efficient than military forces, which have the great advantage of local knowledge to assist them in any active operations in their own country.

2. So long as the sea supremacy of the Mother Country is maintained Australia is fairly secure from invasion, but in time of war we would be exposed to attacks upon the floating trade, and to raids on our coastal towns by powerful cruisers. It is therefore obligatory that adequate means should be taken to provide against such emergency.

3. Owing to the progress made by foreign Powers in the construction and maintenance of powerful sea-going cruisers, the present Auxiliary Squadron has become inadequate, and the Commonwealth is confronted with the immediate necessity of arranging for up-to-date naval protection being provided.

4. Rear-Admiral Sir Lewis Beaumont, Commander-in-Chief of the Australian Station, has already given his views on the present necessities of Australian naval defence in a letter to the Governor-General, which was presented to Parliament on 16th August, 1901, from which I extract the following:—

“1. I can give what, in my opinion, are the obligations of the Federal Government in respect of the naval defence of the Australian Commonwealth.

- a. They should cause to be maintained on the Australian Station, as defined by the Admiralty, a squadron of at least six cruisers in commission, two of them first-class cruisers of 7,000 to 8,000 tons displacement, and the other second-class cruisers of the improved ‘High-flyer’ type.
- b. There should, in addition, be two such second-class cruisers in reserve.
- c. These vessels ought to be replaced gradually by more modern vessels as the development of naval construction renders it desirable or the increase of foreign fleets makes it necessary.
- d. The vessels should be under the Admiral in command of His Majesty’s ships on the station, the crews subject to the Naval Discipline Act, and embarked under the same terms of engagement as in the Royal Navy.
- e. The head quarters of the squadron ought to remain at Sydney, owing to the repairing facilities and convenience of the existing depôts there, but the ships should be attached in turn for ordinary peace service, when not required for fleet exercises, to suitable ports in each State, where the Federal Government should give facilities for the gradual establishment of the secondary naval bases which will be essential in war as regards coal, stores, and repairs.

“The above gives, in broad lines, the naval force adequate for the naval defence of Australia at the present time. It



will be seen, from the size and number of the ships required, from the necessity which will undoubtedly arise of replacing them from time to time by more modern ships, from the fact that they must be continuously manned by trained officers and men, and that the ships must not only be maintained in commission but must be gradually provided with new bases, that it is beyond the power of the Commonwealth at the outset to create such a force.

- "2. It follows, therefore, that such a force can only be acquired and maintained by arrangement with the Imperial Government, and I believe that if this course was adopted it would also follow that the greatest amount of good would be maintained at the smallest possible cost.
- "3. In view of the Federal Government providing for the immediate future an adequate and up-to-date sea-going fleet for the defence of Australian floating commerce and the protection of Australian territory, I consider that it should take no part in the creation or maintenance of Naval Reserves or State naval forces, which experience has shown cannot be utilised in a manner at all commensurate with their cost, or assist, except within too narrow limits, in the defence of the Commonwealth.

"The future may see the creation of an Australian Navy, but for the present the safety and welfare of the Commonwealth require that the naval force in Australian waters should be a sea-going fleet of modern ships, fully equipped, fully manned with trained crews, homogeneous as to type and *personnel*, and under one command.

"For the Federal Government to form out of the existing naval organisations a permanent force as the nucleus of the naval defence force, the main body of which would be derived from Naval Brigades, as suggested in your Excellency's letter, would not be sufficient, unless the force is only intended to supplement the crews of His Majesty's ships in war; if not, then modern ships would have to be provided and maintained by the Federal Government for the officers and men of the Commonwealth naval force, in which they could be trained at sea, and a part maintained at all times in a state of efficiency and readiness for war, a system which would be much more costly and less efficient than if the ships and men were provided by arrangement with the Imperial Government."

We have in the above clear statement of Admiral Beaumont the opinion of an able and experienced naval officer on the question, and it is fortunate that we have been placed in possession of his views, inasmuch as they represent an expert and impartial opinion worthy of the greatest respect and entitled to the fullest consideration.

## II.—EXISTING NAVAL FORCES.

5. The Commonwealth has taken over the local naval forces from the States of New South Wales, Victoria, Queensland, and South Australia, which are at present maintained at an annual cost of about £75,000. These forces consist of 242 permanent officers and men and 1,637 partially-paid members of naval brigades.

6. For years past no means have been provided in New South Wales for giving to the local naval force any sea training. They have no ships and are, therefore, merely sailors drilled on shore, and would be of little value as a naval force in time of war. In Victoria there is the harbour defence ship "Cerberus," and four torpedo-boats, but the existing means are inadequate for obtaining effective sea training for the men. In Queensland there are the gun-boats "Gayundah" and "Paluma," and in South Australia there is the gun-boat "Protector," and in both of these States a limited amount of sea training is carried out. The Colonial Defence Committee has stated, with regard to these local harbour defence ships, that it is difficult to obtain from them an effect commensurate with the outlay entailed.

7. These local forces, maintained under existing conditions, appear, therefore, to be of small value for naval defence, and if they are to be organised in the future, so as to provide a force of trained seamen, available for supplementing the crews and for the manning of sea-going cruisers in time of war, suitable ships must be provided in which to train the officers and men at sea.

### III.—RECOMMENDATIONS FOR IMMEDIATE FUTURE.

8. Whatever may be done in the future, if we accept, as I think we must, Admiral Beaumont's opinion, that "it is beyond the power of the Commonwealth at the outset to create a force adequate for the naval defence of Australia, and that such a force can only be acquired and maintained by arrangement with the Imperial Government," it is absolutely necessary, for a time at any rate, to depend upon the Royal Navy for our naval defence. The Commonwealth under the existing agreement pays the Admiralty £106,000 a year, and New Zealand pays £20,000 a year; but, as a more powerful fleet is required, a greater contribution will be necessary under a new arrangement. I am informed that the cost of the annual maintenance of the "Royal Arthur" alone is more than our whole contribution of £106,000.

9. I would recommend that until a more permanent basis for the naval defence of the Empire is decided upon, the naval defence of the Commonwealth be carried out on the following basis:—

- a. That the existing agreement with the Imperial Government be readjusted and extended for ten years (unless cancelled sooner by mutual consent). The number and class of ships to be stationed in Australian waters, the annual contribution, and all other matters to be definitely dealt with in such revised agreement.
- b. That the existing Naval Militia forces be made effective for supplementing the manning of sea-going ships in time of war, and that two ships commanded by officers of the Royal Navy be allotted by the Admiralty for their naval instruction, and with that object to visit the various ports throughout the year. The Militia naval forces to be available for the protection of the Commonwealth on land as well as on sea.
- c. That expert opinion be obtained as to what extent the "Cerberus," "Protector," gun-boats, torpedo-boats, and existing armaments can be profitably utilised.

- d. That the permanent naval defence forces now existing in Victoria, New South Wales, and Queensland be reduced in strength, and only a staff sufficient for the instruction of the Naval Militia on shore be retained.

It would seem to be absolutely necessary that in any such new arrangement provision should be made for one or two powerful cruisers to be stationed in Australian waters capable of successfully resisting an attack by similar war-ships of foreign nations.

#### IV.—PROPOSAL FOR AN AUSTRALIAN NAVY.

10. If it were desirable for Australia to have a navy of her own, maintained altogether by the Commonwealth, we could in that case buy our own ships of war, man them in our own way, and be quite independent of the Imperial Navy.

11. In order to provide even the small squadron proposed by Admiral Beaumont of two first-class and six second-class cruisers, together with depôts and stores, would probably cost £3,600,000 on the following basis :—

Two first-class cruisers ... ..	£1,000,000
Six second-class cruisers ... ..	2,500,000
Depôts and stores, viz., naval yards, &c....	100,000

Total capital cost... ..	£3,600,000
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12. The maintenance of this squadron in Australian waters, if fully manned and equipped in a way that would enable it to engage successfully the first-class cruisers of the enemy, with two of the second-class cruisers in use for training, say 2,000 men of the Naval Militia, would probably amount to about one million a year, including interest at 5 per cent. per annum on the capital cost.

13. It has been proposed, and the plan is much favoured by some, that during time of peace a squadron thus organised should only be manned with sufficient men to maintain the ships in working efficiency, and should be wholly employed in training the Naval Militia, and that in time of war it should be fully manned by such Naval Militia collected from the several ports of the Commonwealth. There would no doubt be a saving in maintenance by this course, but Admiral Beaumont is of opinion that a squadron thus mobilised and manned would not be able to meet on equal terms the powerful cruisers with highly-trained crews that would be certain to be used against us, and that "for the present the safety and welfare of the Commonwealth require that the naval force in Australian waters should be a sea-going fleet of modern ships, fully equipped, fully manned with trained crews, homogeneous as to type and personnel, and under one command.

14. I am not prepared to recommend under existing conditions the establishment of an Australian Navy. Even if it were established, I am afraid it would not be very efficient, for besides the enormous cost of replacing the fleet from time to time with more modern ships, there would be no change for the officers and crews, who would go on year after year in the same ships, subject to the same influences, and, I fear, with deteriorating effects.

## V.—THE PERMANENT NAVAL DEFENCE OF THE EMPIRE.

15. In regard to defence we must altogether get rid of the idea that we have different interests to those of the rest of the Empire, and we must look at the matter from a broad common standpoint. If the British nation is at war, so are we; if it gains victories or suffers disasters, so do we; and therefore it is of the same vital interest to us as to the rest of the Empire that our supremacy on the ocean shall be maintained. There is only one sea to be supreme over, and we want one fleet to be mistress over that sea.

16. We are bound also to consider and to fully realise that we belong to a nation which for centuries has been mistress of the sea, and that the position we occupy in Australia to-day in being all British territory, and having always enjoyed peace and security, is absolutely attributable to the protection given to us by the British flag.

17. We are accustomed to travel about the world for the purpose of trade or in pursuit of pleasure, and to feel when we visit foreign countries that our lives and property are secure and in specially safe keeping. We then realise fully the great privilege and advantage of being a British subject, and feel proud when we see the flag of our motherland everywhere in evidence, ready, willing, and able to protect us.

18. Our aim and object should be to make the Royal Navy the Empire's Navy, supported by the whole of the self-governing portions of the Empire, and not solely supported by the people of the British Isles, as is practically the case at the present time. It is, I think, our plain duty to take a part in the additional obligations cast upon the Mother Country by the expansion of the Empire, and the extra burdens cast upon her in maintaining our naval supremacy.

19. If a proposal were adopted that the Empire should have one fleet maintained by the whole nation, every part contributing to its support on some plan to be mutually arranged, probably on that of the comparative trade of each country, and not necessarily on an uniform basis of contribution, what a splendid idea would be consummated, and what a bulwark for peace throughout the world would be established! Besides which, we would be doing our duty to the Mother Country, which has been so generous to us during all our early years.

20. If the Federations of Canada and Australia and the Colonies of South Africa and New Zealand were to agree to this great principle of one fleet for the Empire's naval defence, then the question of contributions and all other matters connected with it could be afterwards arranged by mutual agreement. I cannot think that for Canada and Australia to each have a few war-ships, and the Cape and New Zealand a few also, each independent of the other, is a plan suited to Empire; such a plan would seem to be in accord with the actions and sentiments of a number of petty States rather than in accord with the necessities and aspirations of a great free united people.

21. If such a plan can be brought about, it would be necessary for the "British Dominions beyond the Seas" to be adequately represented at the Admiralty, and I feel sure this could be arranged on a mutually satisfactory basis. In time of war there could not be any division of responsibility, and, until a more extended federation of the Empire is established, that responsibility would have to rest upon the Imperial Government.

22. It would be advisable that means should be provided for training boys in Canada, Australia, and other places, and for the drafting

into the Navy of a certain number annually, and greater facilities might possibly be given for officers entering the Navy. By these means the *personnel* of the Navy would consist to some extent of British subjects from different parts of the Empire, and this might in time have the effect of a greater personal interest in the Navy being taken by the people living outside the British Isles than has hitherto been the case when all have been recruited from the Mother Country.

23. Great Britain spends annually on her Army and Navy about £50,000,000 (not including the South African war), or about £1 5s. per head of her population. If the Australian Commonwealth contributed in the same proportion it would amount to something like £5,000,000 a year, whereas our entire military and naval defence vote does not exceed £800,000 a year, or only about 4s. per head of our population.

24. It may, of course, be said that in building up another Britain in the Southern Hemisphere, thus providing another home for our countrymen, and by extending British influence and trade, we have been doing a greater work for the Empire than by contributing towards Imperial naval defence, but I think the time has gone by for us to use such arguments, as both duty and stern necessity require that we shall stand shoulder to shoulder with the Motherland in the determination to maintain inviolate the integrity of the Empire. That this is the sentiment deep-rooted in the hearts of the Australian people has, I am proud to say, been shown during the South African war, which we have made our own, proving unmistakably to the world that our interests in war as well as in peace are indissolubly bound up with the country from which our fathers came, and to which we are all proud to belong.

25. I would suggest that the Imperial Government should be consulted as to the advisability of holding a Conference in London, at which representatives from Canada, the Cape, New Zealand, and Australia might be asked to discuss and if possible arrive at a conclusion as to the views herein set forth, or any others that may be submitted having for their object the strengthening of the naval defence of the Empire, and that the conclusions arrived at should be then forwarded for the consideration of the Governments and Parliaments concerned.

JOHN FORREST,

Minister of State for Defence.

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FRANCE.—The following are the principal promotions and appointments which have been made: Vice-Admiral—C. A. L. F. Gigon to be Commander-in-Chief of the 3rd Arrondissement Maritime (Lorient). Capitaine de Vaisseau—E. M. Lemogne to "Jurien de la Gravière."—*Journal Officiel de la République Française*.

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The new armoured first-class cruiser "Jeanne d'Arc," having made good some slight defects, left Toulon on the 20th ult. for Brest, where she arrived on the forenoon of the 25th ult. Rear-Admiral Bugard, who commands the cruiser division of the Northern Squadron, is to transfer his flag to her from the armoured cruiser "Bruix," which ship will then be paid out of commission into the Reserve, part of her crew being transferred to the "Jeanne d'Arc" to bring her up to her full complement. Sundry alterations have still to be made before the ship is ready for her new duties, and her propellers are also to be changed as soon as the new ones, which are being made for her by the Indret Firm, are ready, for though the

I.H.P. developed by her engines has exceeded the contract, the estimated speed has not been realised.

The new first-class armoured cruiser "Amiral-Gueydon," which was to have joined the Active Squadron of the Mediterranean Fleet, is now to proceed to China, taking the place of the new first-class cruiser "Jurien de la Gravière," which, in her turn, instead of proceeding to the East, will relieve the third-class cruiser "D'Estrées" in the Atlantic Division; by this change both stations will gain by an accession of strength. Although the "Jurien de la Gravière" only attained a speed of 22·8 knots, instead of the 23 for which she was designed, in spite of the fact that the engines developed 1,000-I.H.P. in excess of the contract, she is still a very useful ship, as she can easily maintain a speed of 20 knots for an indefinite time, and in war-time would easily run down the bulk of merchant steamers afloat.

*Interpreters.*—A decree has been published establishing the position of officer interpreters in the French Navy, open to officers of all branches, executive, engineer, medical, and paymaster. A limited number of officers will be permitted to reside abroad for study, for periods not exceeding one year. While so residing, they will receive a special rate of pay, and their travelling expenses will be defrayed. On returning to France, they will be examined in the language they have taken up, and, if successful, will be appointed interpreters. They will also be required to submit to the Minister of Marine an original essay concerning the country in which they have been residing, and a gold medal and prize of 300 francs will be given to the author of the best production.

*Steam Trials.*—The new second-class battle-ship "Henri IV." is continuing her trials at Cherbourg; a recent trial for 24 hours, at 6,103-I.H.P. was on the whole satisfactory, though the engines do not yet seem to work quite smoothly. During the first 6 hours the coal consumption was 67·95 kg. (149·76 lbs.) per square metre of grate per hour, and 745 gr. (1·49 lbs.) per H.P. per hour; during the whole 24 hours the expenditure was 782 gr. (1·56 lbs.) per H.P. per hour. The total grate surface is, according to the contract, 75 square metres, and of the heating surface, 2,409·65 square metres. The new first-class armoured cruiser "Amiral Gueydon," having had her bilge keels shortened, and some other modifications carried into effect, has resumed her trials. During a run of 3 hours at full speed, although the steam pressure fell from 18 kg. (39·67 lbs.) to 16 kg. (35·26 lbs.), in consequence of the bad quality of the coal, and it was thus impossible to develop the 19,600-I.H.P. which should have been done, 17,500 being the maximum H.P. reached, yet a speed of 21·04 knots, which is slightly over the contract, was maintained, as against 20·34 knots, which was the most attained at the trial in December last, when the engines developed their full H.P. It is therefore hoped that at the next trial, with proper coal, a speed of 22 knots may be reached, and it is at least satisfactory to know that the ship can be taken out of the list of failures. As she belongs to a new type, she was bound to develop some defects; but these have been remedied now apparently successfully. Since her full-speed trial, the ship has carried out some successful trials with coal and petroleum fuel.

The second-class battle-ship "Dévastation," at Brest, has been carrying out her trials after her prolonged overhaul and modification in the dockyard; the most important change being the substitution of Belleville water-tube boilers for her old cylindrical ones. At a coal consumption trial, with the engines developing 1,500-I.H.P., a speed of 9·5 knots was maintained, the consumption being 763 gr. (1·52 lbs.) per



I.H.P. per hour, as against 1 kg. (2·204 lbs.) with the old boilers; her radius of action has thus been increased by nearly a third. At a further trial, with the engines developing 6,534-I.H.P., a speed of 14·7 knots was maintained, the coal consumption being 866 gr. (1·73 lbs.) per I.H.P. per hour, as against 1,200 gr. (2·4 lbs.) formerly. On her final full-speed trial, the engines developed 8,850-I.H.P., the mean revolutions being 77, giving a speed of 15·4 knots; the coal consumption per square metre of grate per hour being 122 kg. (268·88 lbs.), and the mean consumption per I.H.P. per hour 842 gr. (1·68 lbs.)

The new torpilleur de haute-mer No. 271, constructed at the Creusot Yard, was recently taken over, having made a mean speed of 24·7 knots, although the weather was bad, the contract speed being 24 knots. She has since been tried at full speed, again for another 3 hours, the weather being fine, when a speed of 24·8 knots was maintained, with a consumption of coal much below the amount allowed by the contract; the company are entitled to a premium of 16,000 francs (£640), being at the rate of 2,000 francs (£80) for each tenth of a knot exceeding the contract.

*Submarine Boats.*—The submarines "Korrigan" and "Farfardet," of the Rochefort *Défense Mobile*, concluded a series of manœuvres by attacking the 2nd Division of the Northern Squadron off the Ile de Ré, consisting of the "Bouvines," "Valmy," "Amiral Tréhouart," and "Dupuy de Lôme." The attack is said to have been successful, the leading ships having been torpedoed.

The submarines "Gnome" and "Lutin," now undergoing their trials, are to be attached to the Rochefort *Défense Mobile*, the commander of which is said to be a most successful expert with submarines.

Some interesting trials have taken place at Cherbourg to ascertain the effect of an exploding torpedo on the hulls of submarines. The "Naiade" was chosen for the experiment, some sheep being placed on board, and torpedoes were exploded at distances varying between 50 and 30 metres (164 and 98 feet); no damage was done to her structure or to the imprisoned sheep. The experiment was afterwards repeated with the crew and some of the committee on board, and no inconvenience was experienced by anyone through the shock. This appears to prove that a submarine may safely approach within a short distance of an enemy's ship before firing her torpedo.

Some particulars of the new submarine boats laid down last year have been published, which are known as "X," "Y," and "Z," and have been designed respectively by MM. Romazzotti, Bertin, and Maugas. "Y" is expected to be completed this year, and "X" and "Z" in 1904. "X" displaces 168 tons, and is 121 feet 6 inches long, with 10 feet 6 inches beam, and a draught of 7 feet 6 inches when navigating on the surface. She is provided with 2 screws, and is propelled by electricity. The intended speed is given as 10½ knots. "Y" is larger, displacing 213 tons, and is 142 feet 8 inches long, with 9 feet 9 inches beam. She has but 1 screw, and the speed is to be 11 knots. "Z" has a displacement of 202 tons, with 135 feet 8 inches length and 9 feet 8 inches beam, and a speed also of 11 knots. Two large submersibles, the "Aigrette" and "Cigogne," have been laid down at Toulon. They will have a displacement of 172 tons, will be 117 feet 6 inches long, with a beam of 12 feet 6 inches, and 8 feet 6 inches draught.

*Gun Trials on Board the "Henri IV."*—Some gun trials have recently taken place on board the battle-ship "Henri IV." to ascertain whether the firing of the 138-mm. (5·4-inch) gun in the upper turret would

injuriously affect the crews of the 274-mm. (10·8-inch) guns in the lower turret. For the occasion some sheep were placed in the lower turret, and after the firing the animals were found in a dazed and stupefied condition; two were slaughtered, and a post-mortem examination showed that the heart of one and the brain of the other were seriously affected. Further trials are to take place, but it is said that the committee have reported adversely against the present arrangement of the turrets.

*New Cruiser.*—The first-class cruiser "Jules Michelet," of the "Léon Gambetta" class, has just been commenced at Lorient. Others of this class are approaching completion, and the delay in laying down the "Jules Michelet" is due to alterations in her design; her displacement has been increased 20 tons, and the power of her engines by 1,500-H.P. The armament has also been changed, and she is to carry two 240-mm. (9·4-inch) guns instead of one 194-mm. (7·6-inch) gun, and twelve 164-mm. guns in lieu of sixteen. She is to be ready for her trials in April, 1906, and for commissioning in January, 1907.—*Le Temps, Le Yacht, and Le Moniteur de la Flotte.*

**RUSSIA.**—Vice-Admiral Avelan, who was appointed temporarily to fill the post of Minister of Marine, on the death of Vice-Admiral Tyrtoff, has been, by an Imperial Decree of 19th April, confirmed in that appointment. The new Minister of Marine is sixty-three years old, and entered the Service in 1855; in 1893 he commanded the Russian Squadron which was sent to Toulon to return the visit of the French fleet to Kronstadt; since 1896 he has occupied the position of Chief of the General Staff at the Ministry of Marine, in which appointment he is succeeded by Rear-Admiral Roschestvenski.

*The Estimates for 1903.*—The Estimates for the present year amount to 104,417,791 roubles (£10,876,853 5s.), showing an increase of 6,338,802 roubles (£660,291 17s.) over last year's. This increase is made up as follows:—

	Roubles.	£	s.
For Maintenance of Fleet and for New Ships ...	4,000,000	=	(416,666 13)
Extension Works at Vladivostok ...	1,181,550		(123,078 2)
"    "    Port Arthur ...	905,000		(94,270 17)
Miscellaneous Expenses ...	252,252		(26,276 5)

The Estimates of the Ministry of Marine for the year are as follows:—

	Roubles.	£	s.
1. Ordinary expenses ...	86,500,000	=	(9,010,416 13)
2. Supplementary grant ...	10,000,000		(1,041,650 0)
3. Increasing number of Scholarships ...	10,000		(1,041 13)
4. Extension and improvement of Vladivostok Harbour ...	3,181,550		(331,411 8)
5. Expenditure on hydrographic exploration round the mouths of the Yenissei and Obi ...	54,700		(5,697 18)
6. Equipment and improvement of Port Arthur ...	4,105,000		(427,604 0)
7. Grant in aid to Government of Kuantung District ...	39,063		(4,066 1)
8. Towards liquidating the mortgage of the Kerch Yenikale Pilot Society ...	14,000		(1,458 2)
9. Expenses due to fire at Galerny Island ...	189,000		(18,750 0)
10. Maintenance of clergy of Kronstadt Cemetery and the Okhten Polygon ...	1,478		(174 0)
11. Erection of five sirens and two-valved beacons in the Gulf of Finland ...	232,000		(24,166 16)
12. Miscellaneous ...	100,000		(10,416 14)
Total ...	104,417,791		(10,876,853 5)

This is further distributed as follows:—

	Roubles.	£	s.
1. Maintenance of Central and Port administrations	2,438,249	(253,984	5)
2. Upkeep of training establishments ... ..	1,175,502	(122,448	2)
3. Ordinary construction and guns ... ..	40,449,682	(4,213,508	12)
4. Admiralty Yards and Workshops ... ..	5,623,877	(596,238	0)
5. Ships in commission ... ..	21,462,717	(£2,235,699	19)
6. Surveying and beacons ... ..	1,535,015	(159,897	8)
7. Construction and rent of buildings ... ..	5,216,372	(543,372	2)
8. Pay and rations of men on shore ... ..	11,608,550	(1,209,223	19)
9. Rewards, pensions, and allowances ... ..	1,492,351	(155,453	5)
10. Medical care and hospitals ... ..	1,266,437	(131,920	10)
11. Various items ... ..	1,951,353	(203,265	19)
12. The construction of Emperor Alexander III. Harbour ... ..	2,349,033	(244,691	0)
13. Expenditure on surveying ... ..	54,700	(5,697	18)
14. Extension and improvement of Vladivostok ...	3,181,559	(331,411	8)
15. Port Arthur ... ..	4,105,000	(427,604	0)
16. Erection of a new slip at Galerny Island ...	407,394	(42,436	18)
Total ...	104,417,791	(10,876,853	5)

The Active List of officers consists of 24 vice-admirals, 35 rear-admirals, 105 captains, 351 commanders, 900 lieutenants, and 775 junior officers, a total of 2,190.

The Marine Artillery Corps is in process of disbandment, and the following officers are the only ones now attached to it: 2 lieutenant-colonels, 3 captains, and 1 staff captain.

The Navigating Officers Corps is also being disbanded, and consists now only of 2 colonels, 7 lieutenant-colonels, 16 captains, and 1 staff captain.

The Engineers Corps consists of 22 inspectors of machinery, 208 chief engineers, 208 engineers, and 200 assistant engineers.

There are 750 naval cadets, who are divided according to yearly terms extending to six, but there are numerous vacancies in the senior terms.

The number of warrant officers, petty officers, and men, is 62,226.

#### STRENGTH AND DISTRIBUTION OF THE FLEET, 1903.

##### *In the Baltic.*

The gunnery training division, under the command of Rear-Admiral Fölkersahm, in commission for four months from the 16th May, is composed as follows:—

Second-class battle-ships—"Imperator Alexander II." (flag-ship), "Navarin."

Coast defence battle-ships—"Admiral Uschakoff," "General-Admiral Apraxin," "Admiral Greig," "Admiral Lazareff," "Pervenetz," "Kreml."

First-class cruisers—"Minin," "Pamiat Azova."

Second-class gun-boat—"Groza."

Torpedo-cruiser—"Voievoda," and 4 sea-going torpedo-boats. There are under instruction 30 officers, 150 gunnery petty officers, 1,150 captains of guns, and 200 gunnery-artificers.

The Torpedo Training Division, under the command of Rear-Admiral Tikotzki, also in commission for four months from 16th May, is composed as follows:—

Coast defence battle-ship—"Admiral Seniavine" (flag-ship).

Training ships—"Europa," "Dwina."

Second-class cruiser—"Africa."

Second-class gun-boats—"Dojd," "Mina."

Torpedo-cruiser—"Lieutenant Ilyin," with 6 sea-going and 7 second-class torpedo-boats. There are under instruction 30 officers, 10 torpedo-mechanics, and 1,010 petty officers and men.

The Naval Cadet Training Division, under the command of Rear-Admiral Tschuchnin, in commission for three months, is composed as follows :—

First-class cruisers—"Kniaz-Pojarski" (flag-ship), "Admiral "Kornilov," "Rynda."

Second-class cruiser—"Viestnik."

Training-ships—"Voine," "Vierni," "Moriak."

The Training Division for the Naval Engineers' School, in commission for three months, consists of the first-class armoured gun-boat "Grosiaschtschi"; the training ship "Strielok" and 4 torpedo-boats.

The Training Division for engine-room artificer candidates, in commission for four months, consists of the coast-defence battle-ships "Admiral Tchitchagov" and "Ne-tron-Menia"; with the torpedo-cruiser "Posadnik."

For the training of divers the second-class cruiser "Opritchnik" for four months.

In commission for four months, for steam and other trials, under the superintendence of Rear-Admiral Nikonoff, will be :—

First-class battle-ships—"Alexander III.," "Osliabia," "Borodino," "Césarevitch," "Kniaz Suvaroff."

First-class cruiser—"Aurora."

Third-class cruiser—"Almas," with the troop-ship "Kamschatka," and 12 torpedo-boats, for three months.

#### *In the Black Sea.*

The Manœuvre Squadron, under the command of Rear-Admiral Krieger, in full commission for four months, and in the Armed Reserve for eight, is composed as follows :—

First-class battle-ships—"Tri Sviatitelia," "Kniaz Potemkin-Tavricheski."

Second-class battle-ships—"Rotislav," "Devenadtsat-Apostolov," "Ekaterina II.," "Sinope," "Tchesme."

Torpedo-cruisers—"Kapitan Sacken," "Griden," "Kazarski."

Torpedo depôt-ship "Dunai," with 4 first-class and 6 second-class torpedo-boats.

The Black Sea Gunnery Training Division, four months in commission, and eight in the Armed Reserve, consists of the first-class battle-ship "Georgi Pobiedonosetz"; the training-ships "Beresan," "Prut," and "Dniester"; the gun-boat "Uralets"; the transports "Bug" and "Donetz," and 2 torpedo-boats. Thirty officers and 501 petty officers and men are to be under training.

#### *In East Asia.*

First-class battle-ships—"Pobieda" (flag-ship), "Retvisan," "Petro-pavlovsk," "Poltava," "Sebastopol," "Peresviet."

First-class armoured cruisers—"Gromoboi," "Rossia," "Rurik."

First-class cruisers—"Varyag," "Bogatir," "Askold," "Pallada," "Diana."

Third-class cruisers—"Novik," "Bojarin," "Djigit," "Zabiaca."

First-class armoured gun-boats—"Gremiaschtschi," "Otvajni."

Gun-boats—"Bobr," "Sivoutch," "Mandschur," "Koretz," "Giuliak."

Torpedo depôt ships—"Amur," "Yenissei," with 2 torpedo-vessels and 32 torpedo-boats of various types. The ships for the most part remain eight months in full commission, and four in the Armed Reserve.

The old armoured cruiser "Dmitri Donskoi" is to be attached to the squadron as a training ship, six months of the year for gunnery, and six months for torpedo specialists.

*In the Mediterranean.*

The Squadron under the command of Rear-Admiral Molass, consists of the second-class battle-ship "Imperator Nicolas I.;" the armoured gun-boat "Khrabry;" the torpedo-cruiser "Abrek," and 2 torpedo-boats.

For the training of quartermasters the cruisers "Herzog Edinburski" and "Kreiser" are employed in the Atlantic, and the cruiser "Pamiat Merkurii" in the Black Sea.

Homeward bound from China are the armoured cruiser "Admiral Nachimoff" and the third-class cruiser "Rasboinik."

*General.*—A "Navy House" has been opened at Nagasaki, which is welcomed in face of the exorbitant prices, dirt, and doubtful reputation of the so-called "Russian" inns. The Russian consul, Prince Gagarin, caused it to be erected. It is a large, two-storeyed building, with a courtyard, in the centre of the town, on the slope of the south-east hill, and all the front windows have an admirable view of the bay, the town, and the mountain opposite. The only objection is that the papers, being received through the Consul, are generally somewhat old.

It is proposed to copy the "flying upper-deck" of the French torpedo-boats, as has already been done in the case of the "Forel." The only drawback is that they would increase splinters in action.

It is considered that there should be trained artificers attached to the gunnery part of the Service, as well as other technical branches, such as torpedoes, electricity and the like. There is so much complicated mechanism connected with guns that it is essential to have a full supply of people at hand capable of repairing such.

*Steam Trials.*—The final results of the trials of the first-class cruiser "Askold," before her departure for the Far East, were as follows:—

Revolutions.	Speed.	Average of Two Runs.		I.H.P.
		Revolutions.	Speed.	
55.1	11.06	55.1	10.89	1,422
55.1	10.71			
69.8	13.81	69.8	13.70	2,968
69.7	13.58			
84.5	16.37	84.7	16.37	5,630
84.8	16.37			
100.3	18.86	100.3	18.89	10,213
100.3	18.92			
105.4	19.41	105.2	19.52	12,346
105.4	19.63			
109.3	19.90	110.7	20.12	14,567
112.1	20.34			

Her draught was:—Forward, 22 feet 2 inches; aft, 21 feet 1 inch. The consumption of coal at 105 revolutions was determined at 232 cwts. per hour for the 18 boilers, or 24 lbs. per H.P. per hour.

The torpedo-destroyer "Bestraschni," constructed at the Neva Works, has been tried on the measured mile at 0.9 of her greatest speed during four hours' uninterrupted working of the engines. Her draught was:—Forward, 6 feet 11 inches; aft, 6 feet 3 inches; and the trials gave the following results:—First run, at 355 revolutions, 27.48 knots; second run,

at 360 revolutions, 27.22 knots; third run, at 345 revolutions, 25.52 knots; fourth run, at 352 revolutions, 26.51 knots; average, 26.68 knots.

With 330 revolutions the speed obtained was 25.21 knots. She is the fifth vessel of the kind taken over.

The torpedo-destroyer "Buistry," also built by the Neva Yard, has completed her trials satisfactorily, making her two last runs, at forced draught, at a speed of 27.96 knots, giving an average for the four of 27.1 knots. Her draught was:—Forward, 6 feet 10 inches; aft, 6 feet 4 inches; and displacement, 350 tons.

The trials of the torpedo-destroyer "Stremitelny," built by Creighton and Co. at St. Petersburg, after the model of the "Sokol," gave the following results at forced draught:—First run, at 376 revolutions, 26.57 knots; second run, at 371 revolutions, 26.49 knots; third run, at 359 revolutions, 25.94 knots; fourth run, at 367 revolutions, 25.78 knots; average, 26.19 knots. Her draught during the trial was:—Forward, 5 feet 3½ inches; aft, 4 feet 6½ inches.

The following table shows the result of progressive trials of the torpedo-boats of the "Ussuri" type:—

P	R	I.H.P.	No. of boilers.	H.E.	C. Sq.	Coal to I.H.P.	Coal per mile.
0.5	159	13.17	4	42	22	4.35	3.19
0.7	222	17.80	6	83½	29	2.07	4.70
0.9	285	22.14	6	190	31	2.16	8.58

P = proportion of full draught. R = revolutions. H.E. = hourly expenditure of coal in pounds (one-third cwt.). C. Sq. = coal to each square foot of grate area.

The Construction Committee has come to the conclusion that the plans for the projected torpedo-depôt ship on the lines of the "Bug" are unsatisfactory and will have to be recast. The length proposed is 210 feet; beam, 35 feet; and draught, 12 feet 3 inches. The metacentric estimate was 2.4 feet, giving a stability not considered to be sufficient.

The torpedo-vessel "Biedovy," after being fitted with three Smith hydrometers, was subjected to trials at 0.5, 0.7, and 0.9 of the highest number of revolutions, and quite justified the conclusions arrived at elsewhere as to the diminution of the evaporative capacity of water-tube boilers in proportion to the increase of fuel consumed. The results were:—Consumption of coal to each square foot of grate area, 22, 25, 48, and 55; amount of water evaporated per lb. of fuel, 9.25, 9.14, 8.9, and 7.36 lbs. The first and third were made with two boilers, the remainder with all four, and all but the last represented four hours' continuous working of the engines; the last only 1½ hours. The vessel has four Yarrow boilers, with 13,000 square feet of surface, and 240 square feet of grate area.—*Kronstädtski Viéstnik* and *Marine Rundschau*.

**Armour Plate Trial.**—At the Naval Polygon at St. Petersburg an official test was carried out of the armour plates supplied by the English firm of Birdmore for various battle-ships of the "Orel" type. They were 6-inch plates, and were fired at with 6-inch guns having initial velocities of 2,023, 2,032 and 2,048 feet. The first made a dent of about 2½ inches and about 6 square feet. The second laid bare the bolts and formed a crack of about 6 inches. The third, striking on the damaged part, pierced the plate and backing and



cut the supports transversely. This marks the plate as unsatisfactory. A large number of experts, official and civilian, were present at the testing.

*Port Arthur.*—For the future the Western Basin at Port Arthur is to be used for battle-ships to lie in, and called the Inner Roadstead. The battle-ship "Poltava" was the first to use it. This has been entirely hollowed on ground where people used to go to shoot, some 350,000 cubic toises having been excavated. The old roadstead was so exposed as to frequently cause the ships to put to sea when the weather became rough in summer, and some four years back a badly handled Chinese cruiser was lost there.

Estimates have been prepared for the construction at Port Arthur of a new dock, to be called the "Eastern Dry Dock."

It has at last been determined to allow the wearing in hot climates of white uniform, even on state occasions, such as the exchange of visits with ships of other Powers.

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## MILITARY NOTES.

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### PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR MAY, 1903.

Colonel (ranking as Major-General) Sir J. Steevens, K.C.B., from retired pay, to be Inspector-General of Ordnance Stores. Major and Brevet Lieut.-Colonel J. S. Cowans, M.V.O., from the Rifle Brigade (The Prince Consort's Own) to be A.Q.M.G., Second Division, 1st Army Corps, and to have the substantive rank of Colonel in the Army. Lieut.-Colonel A. W. L. Bayly, C.B., D.S.O., I.A., to be A.D.C. to the King. Major-General Sir B. M. Hamilton, K.C.B., to be a Major-General on the Staff to Command the 5th Brigade, 3rd Division, 1st Army Corps. Lieut.-Colonel and Brevet Colonel C. Wilkinson, from h.p., to be a Colonel on the Staff for Royal Engineers, with the substantive rank of Colonel in the Army. Major and Brevet Colonel Sir H. S. Rawlinson, Bt., C.B., from the Coldstream Guards, to be an A.A.G. at Head Quarters and to have the substantive rank of Colonel in the Army. Lieut.-Colonel W. G. Collingwood, Ordnance Officer 2nd Class, to be Ordnance Officer 1st Class, with the substantive rank of Colonel. General Sir R. Harrison, K.C.B., C.M.G., to be Colonel Commandant Royal Engineers. Lieut.-Colonel and Brevet Colonel A. W. McKinstry, from h.p., to be Colonel to Command the 17th Regimental District (The Leicestershire Regiment). Lieut.-Colonel M. H. S. Grover, I.A., to be an A.Q.M.G. of a Command in India and to have the substantive rank of Colonel in the Army. Major-General R. B. Lane, C.B., from a Major-General on the Staff, to be Military Secretary at Head Quarters. Major-General W. T. Shone, C.B., D.S.O., R.E., from Director of Military Works in India, to be Inspector-General of Fortifications at Head Quarters. Lieut.-Colonel and Brevet Colonel G. J., Lord Playfair, from h.p., to be a Colonel on the Staff for Royal Artillery and to have the substantive rank of Colonel in the Army. Major-General D. J. S. McLeod, C.B., D.S.O., I.A., to be a Lieut.-General on the Staff in India and to be promoted accordingly. Major and Brevet Colonel E. A. H. Alderson, C.B., A.D.C., from the Queen's Own (Royal West Kent Regiment), to be a Brigadier-General on the Staff to Command the 2nd Brigade, 1st Division, 1st Army Corps, with the substantive rank of Colonel

in the Army, and the temporary rank of Brigadier-General whilst so employed. Major-General R. S. S. Baden-Powell, C.B., to be Inspector-General of Cavalry in Great Britain and Ireland.

**AUSTRIA-HUNGARY.—Manœuvres for 1903.**—The manœuvres this year will be those of two army corps operating against one another. These manœuvres will take place on the borders of Hungary and Transylvania. The VIIth and XIIth Army Corps as well as the Honved troops will take part in them.

The VIIth Army Corps (Temesvar) will consist of the 17th and 34th Infantry Divisions and of the 7th Cavalry and the 7th Artillery Brigades. The 17th Division will include the 12 battalions of the 37th, 39th, 33rd, and 65th Infantry Regiments the 34th Division will consist of the 12 battalions of the 29th, 43rd, 46th, and 101st Infantry Regiments, and of the 14th Pioneer Battalion.

The XIIth Army Corps (Nagy-Szeben) will consist of the 16th and 35th Infantry Divisions, and of the 12th Cavalry and 12th Artillery Brigades. The 16th Division will be made up of the 10 battalions of the 50th, 62nd, 2nd, and 63rd Infantry Regiments, and of the 28th Jaeger Battalion; the 35th Division will consist of the 14 battalions of the 31st, 64th, 51st, and 82nd Infantry Regiments, and of the 12th Pioneer Battalion.

**Formation of a Corps of Supply Officers.**—A decree of the War Minister, approved by the Emperor, has just created a Corps of Supply Officers (*Proviant-Offiziere*) for the troops and staffs, which will be formed from non-commissioned officers who have enlisted for long periods of service. By this means a considerable number of combatant officers, who have hitherto been absorbed in the Supply Service, will become available for regimental duty, and the new corps will, in addition, have the advantage of offering an excellent career and an assured future to intelligent non-commissioned officers.

The new corps, says the *Armeeblatt*, is meant to provide a service of supply in the field, for troops, military establishments, and staffs. It will form, as regards promotion, a separate department consisting of 1st and 2nd class captains, lieutenants, and sub-lieutenants. Officers of this corps free commanding officers from all responsibility as regards supply and regimental transport. They may also be employed as mess presidents and supervisors of garrison messes of officers, and, in case of necessity, for those of non-commissioned officers. The corps is recruited from assistant supply officers, who are non-commissioned officers who have successfully passed through a special school of instruction. These non-commissioned officers must, in order to enter the new corps, serve for one year, after leaving the school, as assistants, and must during that period show the necessary professional aptitude. As regards courts of honour and marriage, supply officers are subject to the same rules as other officers of the Army.

In conjunction with this new formation is a school, alluded to above, which will be founded this year, as an annexe to the Special Military Administrative School at Vienna. The chief supervision of the annexe school will be in the hands of the Commander of the Administration School. The special director of the school will be a captain. The cadre of instruction will, in addition, consist of a subaltern officer of infantry, cavalry, or artillery, of a subaltern of transport, and of a commissariat officer, and also, if necessary, of officers for special subjects. The effective of the pupils must not exceed 50. Only non-commissioned officers of excellent character

will be admitted, who must have at least six years' service in the Regular Army, three of which must have been in the non-commissioned ranks, and they must not exceed 30 years of age. According to the *Vedette*, only non-commissioned officers of the Regular Army will be admitted to the school. The course will commence each year in the latter half of October, and will end on the 15th July of the following year. It should be noted that the organisation of the new corps and school is merely provisional.—*Revue du Cercle Militaire*, *Armeeblatt*, and *Vedette*.

FRANCE.—*Cavalry Re-organisation*.—The *Journal Officiel* of the 31st December, 1902, notified that during the first months of the following year, and at a date to be hereafter given out, the number of cavalry divisions would be increased from 7 to 8. These divisions will be composed as follows :—

- 1st, Head Quarters, Paris—2 brigades of cuirassiers and 1 of dragoons, each of 2 regiments.
- 2nd, Head Quarters, Luneville—1 brigade of dragoons of 2 regiments, and 1 of chasseurs of 3 regiments.
- 3rd, Head Quarters, Châlons—1 brigade of dragoons, consisting of 2 regiments of dragoons and of 1 chasseurs, and 1 hussar brigade of 2 regiments.
- 4th, Head Quarters, Sedan—1 dragoon and 1 hussar brigade of 2 regiments each.
- 5th, Head Quarters, Reims—2 brigades of chasseurs and 1 of dragoons, each with 2 regiments.
- 6th, Head Quarters, Lyon—1 cuirassier and 1 dragoon brigade, each of 2 regiments.
- 7th, Head Quarters, Melun—1 cuirassier brigade of 3, and 1 dragoon brigade of 2 regiments.
- 8th, Head Quarters, Dôle—1 dragoon and 1 chasseur brigade, of 2 regiments each.

To each division 2 batteries of horse artillery are attached. Hitherto all the independent cavalry divisions consisted of 3 brigades of 2 regiments each, with the exception of the 7th, which only had 2 brigades, one consisting of 3 and the other of 2 regiments. The 6 permanent military districts of inspection general of cavalry also cease to exist, the generals commanding the 19 cavalry brigades belonging to them having been found employment elsewhere. Of the 19 cavalry brigades, 15 consist of a dragoon with either a chasseur or hussar regiment; 1 brigade, that of the IVth Army Corps, consists of 2 regiments of light cavalry (chasseurs and hussars); finally, the brigades of the VIth and VIIth Army Corps, which are formed into 3 divisions, have 3 regiments, viz., 2 of chasseurs and 1 of hussars. The total number of regiments forming the brigades and divisions quartered in France has not been changed, but amounts, as formerly, to 79, viz., 13 regiments of cuirassiers, 31 of dragoons, 21 of chasseurs, and 14 of hussars. The 14th Cuirassiers and the 32nd Dragoons have still to be raised to conform to and complete the provisions of the law of the 25th July, 1887, which increased the number of cavalry regiments from 77 to 91, including the 4 regiments of Spahis and the 6 regiments of Chasseurs d'Afrique.

*New Organisation of the 5th Squadrons of Cavalry Regiments*.—The War Minister also decided, on the 20th November last, to enrol a fraction of the recruit contingent in the 5th squadrons of cavalry regiments, in

proportion to their available cadre resources. To the 5th squadrons will be attached: 1st, men whose constitution is too weak to immediately undergo the hard training carried out in the active squadrons; 2nd, men intended to fill various employments in the corps; 3rd, men who enlist voluntarily during the course of the year, and men who are put back for various causes. These latter form successive groups and may, like the others, be passed on to the active squadrons when they are considered to be sufficiently trained and physically fit.

In order that the 5th squadrons may be able to carry out the new duties devolving on them, the active squadrons will hand over a sufficient number of their horses to them, selected from amongst those whose age and long-continued strain render them less fit for service in these units. The duties of the 5th squadrons are very similar to those assigned in Germany to the former half battalions; but, whilst the latter were especially intended to facilitate the more advanced instruction of the other battalions by relieving them of supplementary recruits (*nach-ersatz*) and workmen, as regards the French 5th squadrons, the principal object of the new measure is to keep the cadres of these units exercised, so as to make them as fit for service as those of the war squadrons. "The 5th squadron," says the circular, "having hitherto only received non-effectives, and possessing only a few sickly horses, the officer commanding it consequently found it impossible to organise for it a proper system of training, and found himself reduced to purely administrative functions. The squadron cadres, being without sufficient occupation, lapsed into a state of indifference and of semi-obligatory somnolence. The object of the new organisation is to put an end to this state of affairs."

GERMANY.—*Signallers of the German Army.*—A circular, dated the 27th January, 1903, regulates the employment of signallers in the German Army. Its object is to insure, by means of suitable signals, the transmission of despatches, during day-time, to a distance not exceeding three kilometres under the most favourable circumstances. The method of employing signallers must naturally vary according to the ground and the tactical situation, and the circular specially recommends their use in broken ground and where the road communication is difficult.

*Organisation.*—Each company, squadron, or battery is given a squad of signallers. The squad consists of 3 men, viz., a squad commander, who is responsible for its work, and has charge of the writing; and two signallers, one of whom (the reader) is especially responsible for the reading of all the signals received, and the other (the transmitter) who sends messages to a corresponding post. In case of necessity, one man may carry out the work of the two signallers. According to requirements, cyclists and men for holding the horses are attached to the squad. A group of 2 squads constitutes a signallers' patrol. Two officers per battalion and per brigade division, and one officer per squadron must be familiar with the practice of signalling, the judicious employment of patrols, and must know how to select suitable stations. This organisation is not, however, a hard and fast one, and the regulation leaves to commanders of troops the onus of deciding to what extent war formations should be provided with signallers. Signallers wear a distinctive badge, viz., two or three buttons with the heraldic eagle on the shoulder-strap or on the cuff.

*Training.*—The training of the signallers is carried out throughout the year, whenever occasion presents, unknown country and unfavourable conditions being preferably selected. A primary theoretic instruction has

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initiated the men with a knowledge of signals, the use of the map and compass, and of telegraphic formula, as well as the influence the state of the atmosphere, of light, and of background has on signalling. Practical exercises are also repeated as often as possible, and should take place at least once a week. When communicating, the signaller holds a flag in each hand, the signals differing according to the respective position of the arms with the level of the shoulders. A special signal corresponds with every letter of the alphabet and with every number, and the transmission is further accelerated by the abbreviation of a great number of ordinary words. The rate of transmission should reach, progressively, ten words a minute.

*Matériel.*—Every signaller is provided with 4 signalling flags (2 of of white and 2 of red stuff), with a note-book of telegraph forms, envelopes, pencils, and compass. This material, which weighs about 3 lbs., is carried with his equipment. It should be noted that German signallers have at their disposal apparatus for day work only.—*Revue Militaire.*

*Training the Soldier's Eyesight.*—A recent article in the *Militär-Wochenblatt* draws the attention of German officers to the necessity of teaching their men the objects they would have facing them in war; in other words, of training their eyesight from a military point of view. Smokeless powder, and the increasing endeavours in all Armies to utilise the ground, necessitates a regular training of the eye. Men are, therefore, frequently placed opposite objects similar to those met with in war, such as sheltered skirmishers, who only show the head and shoulders and who frequently disappear. It is consequently necessary to have frequent manœuvres of opposing forces, or at least sham fights where the enemy is represented by a certain number of men placed on the ground. In field firing, therefore, instead of seeking to make the bulk of the percentage of hits by firing at silhouettes of men in an upright position, it would be better to carry out the practice against figures of men lying down or in shelter trenches difficult to distinguish from the ground.

This article also draws attention to the necessity of using field-glasses to observe a distant or concealed enemy. In every patrol one man should invariably carry field-glasses. It is not enough for officers to have them; non-commissioned officers should also be provided with them, and the author recommends that field-glasses should, preferably, be awarded as prizes for shooting.

*NETHERLANDS.—Reorganisation of the Military Forces.*—In his reply to the report of the Committee of the 2nd Chamber of the States General on the Budget for 1903, the War Minister announced that the number of the infantry divisions will be increased from 3 to 4, each of them consisting of 3 infantry regiments of 4 battalions each. This organisation will necessitate the formation of a 4th cavalry regiment, of a 4th artillery regiment, of a 4th field company of engineers, and of a 4th company of hospital orderlies. The fortress artillery will preserve its present organisation.

*Infantry.*—The new organisation does away with the 5th, so-called fortress, battalions which exist in the 9 infantry regiments. The 5th and 6th Battalions which should be raised on mobilisation in each of the 12 regiments, will be formed by means of 16 sections furnished by the companies of the 4 Regular battalions; the oldest men of the Militia classes will be enrolled in it. The 5th battalions will be sent to garrison fortified places, the 6th battalions, after doing duty on the lines of communication,

will form the reserve of the field army when the Landwehr units are mobilised.

*Cavalry.*—The 4 regiments will each consist of 4 instead of 5 squadrons, plus 1 dépôt. Individual instruction, which is at present given at dépôts, will in future be carried out in the squadrons.

*Field Artillery.*—The Minister declared that after the adoption of a Q.F. matériel, it is probable that batteries will be reduced from 6 to 4 guns. At the same time this point will not be definitely decided until the question of the armament has been fixed and the credits given for the acquisition of new guns.

*Engineers.*—The interior organisation of these troops will be simplified.

*Administration Troops.*—An administrative company will be formed on mobilisation. The personnel assigned to this unit will receive, in peacetime, military instruction in infantry regiments, and will then be attached to certain administration establishments, with a view to being there prepared for their duties.

*Hospital Orderlies.*—As in the 3 existing units, the new company, on a peace footing, will be administered by an infantry lieutenant, and will only consist of a small nucleus of men, who will be attached to the hospitals after having received a certain amount of military instruction in infantry corps.

*War Strength.*—When the law on the Militia has produced its full effect, the war strength of the Army, not including the Landwehr, will amount to 126,000 men, disposed as follows :—

	Men.
Field Army ... ..	63,000
5th and 6th battalions ... ..	40,000
Dépôts ... ..	23,000

*Landwehr.*—The Landwehr will receive its first Militia contingent on the 1st August, 1903. It will have an organisation entirely distinct from that of the Army.—*Bulletin de la Presse et de la Bibliographie Militaires.*

**PORTUGAL.**—*National Target Practice.*—One of the items in the programme of military reforms of 1901, not yet completely carried out, is the adoption of measures for developing instruction in shooting amongst the civilian population. As a first step towards the attainment of this object, a new provision was introduced into the recruiting regulations of 1901 according to which youths inscribed on the recruiting registers, who had profitably attended national target practice for three years, were drafted into the 2nd Reserve after going through a preliminary period of instruction of 100 days. The provisions of these regulations are briefly as follows :—

All Portuguese citizens, who are of age, are encouraged to group themselves into shooting societies consisting of at least 20 members, in places possessing a rifle range. These societies, under the title of "Union of Portuguese Civilian Riflemen," form a whole, whose object is :—1. To stimulate the patriotic sentiment and to raise the intellectual and moral standard of the nation. 2. To develop physical education, and to encourage a taste for military service by gymnastics, fencing, handling of arms, military exercises, as well as by theoretic and practical instruction in shooting with the service weapon. The societies are under the War Minister, and are under the immediate orders of commanders of recruiting districts. "The Union of Portuguese Civilian Riflemen," whose chief head quarters are at Lisbon, is under the honorary presidency of the King, and



is regulated by statutes approved by the War Minister. The members have a distinctive general badge.

The Government places at the disposal of the shooting societies existing rifle ranges, *matériel*, the *personnel* of military instructors, arms (as a rule the Service rifle), and a primary gratuitous grant of 60 cartridges per member, the remaining cartridges being provided at a reduced cost. In localities where no rifle ranges exist, individual initiative is authorised to make one, either through private resources, or by means of Government financial assistance. As a rule the shooting is carried out on Sundays, from November to May, at the Lisbon rifle ranges; at other ranges the dates are fixed by the War Department. At the same time target practice may take place on holidays and even on work days. Persons not belonging to any society cannot take part in the shooting unless they have their names registered as riflemen, and they then benefit by the same advantages at the rifle ranges as those affiliated to societies, such as the first gratuitous grant of ammunition and subsequent reduction in its price. Pupils at educational establishments are not permitted to register their names individually, unless these establishments belong to the "Union."

Musketry instruction is carried out in 3 years, consisting respectively of 8, 7, and 8 meetings. 3rd class shots are those who, at 100 and 400 yards, put 32 out of 64 shots on the target, with a minimum of 59 points; 2nd class shots are those men belonging to the 3rd, who, at from 200 to 600 yards, put 28 out of 56 shots on the target, 5 of the hits being on the figures; 1st class shots are men who, belonging to the 2nd class and at distances of from 200 to 600 yards, put 24 out of 64 shots on the target, 20 of the hits being on the figures. 1st class shots receive a certificate. Shooting meetings are organised annually, viz., 1st, local meetings, got up by individual societies; 2nd, district meetings, got up by the amalgamated assistance of several societies; and 3rd, a grand national meeting. The War Department organise the last meeting, as well as all international meetings, to which shooting societies of foreign countries are invited. Shooting societies may, in addition, organise matches between their members.

At the local and district meetings only those can take part whose names are registered at some rifle range, at the same time only riflemen belonging to regular societies, or residing in this neighbourhood, participate in the prizes. At the grand national meeting prizes and medals are offered by the War and Home Departments, as well as by the municipal chambers.—*Bulletin de la Presse et de la Bibliographie Militaires.*

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RUSSIA.—*Summer Drills and Manœuvres.*—The Emperor approved, on the 17th April last, the programme of the work for the Russian Army for the summer of 1903. The programme does not differ greatly from that of preceding years. The *Invalide Russe* gives the following details regarding those for the present year :—

#### ST. PETERSBURG DISTRICT.

All troops, with the exception of those detailed for guard duties (23rd Division, and the 198th and 199th Reserve Regiments), and the Archangel Reserve Battalion, will be assembled in three camps of instruction. There will assemble, at Krasnoé-Sélo, between the 20th July and the 14th August the Guards' Corps, the 37th Infantry Division with its artillery, the 200th Reserve Infantry Battalion, the 1st and 2nd Battalions of Cronstadt Fortress Artillery, the 4th Mortar Regiment, the 23rd Artillery Brigade,



and the Guards' Depôt Field Battery. In addition, special artillery assemblies will take place at Krasnoé-Sélo from the 14th May to the 18th June, for gunnery practice. The special cavalry manœuvres will be held at Krasnoé-Sélo under the Grand Duke Nicholas, Inspector-General of Cavalry. The first, or preparatory, period of the summer drills will extend from the 14th May to the 19th July; the second period, for combined manœuvres of the three arms, from the 14th to the 23rd August. For the second period of the manœuvres the infantry at Krasnoé-Sélo will be formed into 8 regiments of 4 battalions each, the artillery in batteries of 8 guns. During the third period of the manœuvres units will resume their normal formations. The camp at Pskow will be occupied from the 14th July to the 14th August by the 24th Infantry Division with its artillery; that at Chenisk by the 22nd Infantry Division with its artillery, from the 14th July to the 2nd August.

The drills in these camps will terminate in grand manœuvres extending over a period of ten days, which will be preceded, for the 22nd Division, by march manœuvres for six days. Certain troops from the Vilna district, who will be encamped in the neighbourhood of Vilna, will also take part in these grand manœuvres, viz., the XXth Army Corps and the 1st Brigade of the 3rd Cavalry Division, with the 5th Horse Artillery Battery. In all 125 battalions, 72 squadrons, and 68 batteries will take part in these grand manœuvres in the St. Petersburg District, the whole under the command of the Grand Duke Vladimir. Details of the organisation of the manœuvres have not yet been elaborated.

#### FINLAND DISTRICT.

The troops, which will assemble at the camp at Vilmanstrand, from the 28th July to the 23rd August, consist of the 1st Finland Jaeger Brigade, the 55th Finland Dragoon Regiment, and the Finland Artillery Regiment.

#### VILNA DISTRICT.

The troops encamped at Skobelew, Vitebsk, Mohilev, and Devinsk, will consist in all of 55½ battalions, 30 squadrons, and 30½ batteries, belonging to the IVth and XVIth Army Corps, the 2nd Cavalry Division (excepting the 2nd Don Cossack Regiment), the 1st Reserve Artillery Brigade, and the 1st and 3rd Depôt batteries. These troops will carry out march manœuvres in the Vitebsk, Mohilev, and Minsk sub-districts, which will conclude with grand manœuvres for 4 days, commencing on the 8th September. These manœuvres will be carried out in the direction of Berezina, under the orders of the officer commanding the district. The troops in the Vilna and Mouraviev camps will conclude their drills with march manœuvres in the Vilna and Kovno districts. Finally, as has been already mentioned, the troops from the camps at Chérémétiev and Petrovsk will participate in the grand manœuvres in the St. Petersburg district.

#### VARSOVIE DISTRICT.

The greater portion of the troops of this district will take part in grand manœuvres, having first gone through a preparatory series of march manœuvres. The duration of the latter will depend on the distances of the camps from the point of concentration. The stay in the camps will vary from one to eighteen days. The grand manœuvres will take place from the 3rd to the 13th September. Nearly all the field and reserve troops of the district will take part in them and will form two armies, consisting in all of 200 battalions, 185 squadrons, 91 batteries, 15 engineer companies, 2

pontoon battalions, and 2 balloon sections. The details of the organisation of these manœuvres have not yet been published. In addition, from the 9th to the 11th October there will be grand cavalry manœuvres, in which 94 squadrons and 6 batteries will take part. During all these manœuvres experiments will be made in automobiles, both for passenger and heavy traffic.

#### KIEV DISTRICT.

The musters at the various camps of this district (not including that at Tchuguiev) will conclude with march manœuvres, and by grand army corps manœuvres with opposing sides, viz., that of Kiev and that of Volhynie-Podolie. The march manœuvres will be carried out by 126½ battalions, 85 squadrons, 74 batteries, and 2 sapper companies, belonging to the XIth, XIIth, XXIth, and IXth Army Corps (with the exception of the 1st Brigade of the 9th Cavalry Division), the 3rd Jaeger Brigade with its Artillery, the 2nd Mortar Regiment, a brigade division of Horse Mountain Artillery, the 2nd Field Depôt Battery, the 2nd Brigade of the 2nd Mixed Cossack Division, and the 1st Brigade Division of Orenburg Cossacks. The march manœuvres will last for 15 days. The summer drills will conclude on the 11th September for all the troops in the district.

#### ODESSA DISTRICT.

The troops encamped at Bender and Sebastopol will execute march manœuvres, for a period of 7 days at the former, and of 5 days at the latter camp. At the conclusion of these manœuvres, landing operations will be organised, in which 46 battalions, 3 squadrons, and 12 batteries will take part. These units will mostly be formed from the regiments and divisions of the district.

#### MOSCOW DISTRICT.

The general musters will end on the 20th August for those troops not taking part in the manœuvres, and on the 28th for those taking part in them. The troops in the Moscow and Yaroslav camps will carry out march manœuvres for a period of 15 days, the effectives consisting of 51½ battalions, 23 squadrons, 23 batteries, and 3 sapper companies.

#### CAUCASUS DISTRICT.

Almost all the cavalry regiments and horse artillery batteries of the district (78 squadrons and 24 guns) will assemble in three camps for special cavalry manœuvres. The points of assembly are Alexandropol, Sarykamych, and Piatigorsk, and the date from the end of July to the middle of August. General assemblies of the three arms will take place in the camps at Tiflis, Piatigorsk, Sarykamych, and Akhalkalaki. At the three latter march manœuvres will immediately follow the assemblies. At Sakykamych and Akhalkalki 34½ battalions, 39 sotnias, 16 batteries, 1 engineer, and 1 telegraph company will carry out grand manœuvres for 3 days, assisted by the garrison of Kars. At the camp at Tiflis the assembly will end on the 29th September; in the others on the 15th September.

#### KAZAN DISTRICT.

The troops assembled at the camps at Penza and Saratow, and consisting of the 54th and 57th Reserve Infantry Brigades, with 2 sotnias and 3 batteries, will conclude their drills with march manœuvres, carried out between those two towns, from the 14th to the 24th August.

## TURKESTAN DISTRICT.

The assemblies at Troitsky and Ak-Tépé will be followed by march manœuvres, lasting from the 14th to the 27th September. Each of the forces taking part in them will receive a sapper and a telegraph company. The summer drills will terminate on the 1st September at Viernyi, Tychkane, and Pétro-Alexandrovs, and on the 27th September at the other camps. All the Reserves of the district are called up to take part in the general assemblies.

## SIBERIA DISTRICT.

There is nothing of especial interest to note in the programme of the assemblies in this district.

If the programme of summer drills is carefully studied, it must be admitted that very great progress has been made both as regards the concentration of troops and in the development of march manœuvres. Thus, in 1898, the musters by divisions worked out at 42 per cent. of divisions, 4 per cent. of brigades, and 24 per cent. of units inferior to a brigade. This year the numbers are respectively 46 per cent., 16 per cent., and 3 per cent. Assemblies consisting of one or more army corps, or several divisions, amount to 35 per cent. of the total number of divisions. If the number of the units taking part in the march manœuvres is examined, the following will be found to be the result :—

In 1898 : 34 per cent. of battalions, 45 per cent. of squadrons, and 39 per cent. of batteries.

In 1903 : 60 per cent. of battalions, 70 per cent. of squadrons, and 68 per cent. of batteries.

These details will show the increased importance attached, in Russia, to the preparation of the troops for field service. It should be added that every year grand manœuvres take place in one or two districts, which allow generals an opportunity of handling large masses of men. The number of troops called out to take part in the general assemblies has increased since 1898, more especially in the St. Petersburg, Caucasus, Turkestan, Kazan, and Siberia districts. The number of units called out for special manœuvres has also increased. In 1899, 80 per cent. of the cavalry, and 96 per cent. of the artillery took part in these manœuvres, whilst this year 83 per cent. of the cavalry and 98 per cent. of the artillery will participate in them.

*Calling up of Reservists.*—The reservists of European Russia and the Caucasus, classified in the infantry and the field and fortress artillery, who belong to the 1893 and 1898 classes, will be called out under the following conditions, fixed by a decree of the 22nd March last :—

Of the 1893 class, reservists of the infantry and fortress artillery, who served for less than 3 years in the Regular Army, will be called out; and of the 1898 class, all infantry and field and fortress artillery reservists. In this summons are included all conditional engagements of the 2nd category: those of the 1st category are called out in accordance with the same regulations as reserve ensigns. Men of the fortress artillery will be called out for 28 days; reservists of field artillery and of the infantry who have served for less than 3 years in the Regular Army, for 21 days; infantry reservists, who served in the Regular Army for more than 8 years will be called out for 14 days, but those men who are not considered sufficiently trained at the end of 14 days may be retained for another week. The commencement of

these periods of instruction is fixed for the 20th August for the St. Petersburg, Finland, and Kazan districts; for the 1st September for the Moscow district; for the 10th September for the Vilna and Varsovie districts; for the 15th September for the Kiev; and for the 1st October for the Odessa and Caucasus districts. The assemblies should be so calculated that corps receiving reservists who have served for less than 3 years in the Regular Army, and those who get reservists who have served for more than 3 years may all be sent down at the same time.

*Re-organisation of the General Staff.*—A decree of the 24th April last lays down the re-organisation of the General Staff in accordance with a new regulation, which has been the subject for study for many years in Russia. The first chapter deals with the functions and composition of the General Staff. The latter is charged with the concentration of all information regarding the troops, matters concerning the *personnel*, the recruiting of the administration troops, and that of military establishments. It attends to the organisation, discipline, duties, movements, armament, equipment, clothing, training, and administration of troops; it looks after their material well-being; it elaborates and publishes military regulations, and is, finally, responsible for the supervision of military prisons.

It is the General Staff that proposes measures with regard to recruiting for the Army, fixes the numbers of the annual contingents, controls the effectives of the Regular Army, its Reserves, and those of the Militia; is responsible for the calling out of Reservists and Militia for training periods, and for the formation of Militia units. It supervises the discipline and moral tone of the Army, and endeavours to develop military education and the training of the men. It is charged with military transports, routes, etc., with all measures for mobilisation, and in general with everything concerning the preparation of troops for war. In addition, it directs all geodetic and topographical works of the Empire that affect military necessities, and collects all possible information about the armed forces of other countries.

*Composition.*—The General Staff is under the immediate control of its chief, and consists of 5 branches, viz., that of the 1st quartermaster-general, that of the 2nd quartermaster-general, that of the head of the department, that of military communications, and that of military topography. Each of these branches, excepting the last, is divided into divisions, which are subdivided into sections, and finally into bureaux. At the same time, certain of these sections do not belong to the division, but are immediately under the chief of the staff. In addition, the following departments are immediately under the General Staff, viz., committee of the General Staff, mobilisation committee, special committee of military transports, military administration and typographical committee with the Staff library and maps. The Nicholas Academy, the Staff Corps, the Military Topographic Corps, and the Corps of Mounted Orderlies, are also attached to the General Staff. A special table, which has not yet appeared in the military journals, fixes the effectives of these various departments.

*Department of the 1st Quartermaster-General.*—This department consists of 5 sections, viz. :—1. The organisation of the troops. 2. Training and education of troops, with an office for the publication of military regulations. 3. Staff service. 4. Administration of the Caucasus and of Turkestan. 5. Administration of Siberia, Amour, and Kwangtung. The 3 first sections are immediately under the quartermaster-general, the 2 last form the Asiatic division, whose chief is subordinate to the quartermaster-general.

*Department of the 2nd Quartermaster-General* consists of 6 sections, viz.:—1. Russian military statistics. 2. Foreign military statistics. 3. Historic archives. 4. Operations regarding defence, and the organisation of instruction in the various districts. 5. Army and Militia recruiting. 6. The calling out of Reservists and Militia. The 3 first sections form the military statistical division, and the 2 latter the mobilisation division; the 4th section (military operations) is directly under the 2nd Quartermaster-General.

*Department of Chief of the General Staff* is composed of 7 sections, as well as the general archives, with their branches at Moscow and at the Chancellery. Military Typography is also under this department. The 7 sections are:—1. Rank and file *personnel*. 2. Officers' *personnel*. 3. Nomination and changes of officers. 4. Rewards and help. 5. Military law. 6. Retirements and pensions. 7. Administration. The Chancellery has to do with matters regarding the General Staff, such as its budget, despatch of orders, registration of papers, etc.

*Department of Military Communications* consists of 6 sections, the first 3 make up an administration and organisation division, and the other 3 a mobilisation division.

*Department of Military Topography* consists of geodetic and of a cartographic section. The Military School of Topography is also under this department.

*The General Staff Committee* is presided over by the Chief of the General Staff, and consists of the 5 heads of the General Staff, the Commandant of the Nicholas Academy, and 6 permanent members nominated by the Emperor. In addition temporary members may be added, consisting of officers with a special knowledge of any subject with which it may be dealing. It is responsible for the employment of suitable measures for the well-being, training, and education of the troops, for the encouragement of Staff work and military topography, for rewards bestowed on officers for work done, and has to reply to questions submitted to it by the War Minister or by the Chief of the General Staff.

*The Mobilisation Committee* collects all information regarding mobilisation, and carries out preparations for war. It is composed of the heads of the General Staff, and of representatives from the various departments under the Minister of War, viz., artillery, engineers, commissariat, medical department, cossacks, committee of military health. Temporary members may also be attached to it.

*Special Committee of Military Transports* has similar composition, and deals with questions regarding the development and improvement of the strategic network of railways, waterways, and roads. Its recommendations must be submitted to the Minister of Roads and Thoroughfares, for his approval, before being carried out.

The Chief of the General Staff is the immediate subordinate of the War Minister, and is directly responsible to him. He is nominated by Imperial decree and by a Senatorial ukase, on the recommendation of the War Minister, and is relieved of his duties according to the same procedure. In the absence of the Minister he replaces him temporarily, provided the Emperor does not nominate someone else for the office. He has the right of inspecting all troops, with their staffs, Junker schools, hospitals, and military prisons. He may give extension of leave to all infantry and cavalry officers, who may have come to St. Petersburg, pending the sanction of their direct chiefs. He is charged with the supervision of the Staff Corps, the Corps of Military Topography, and the organisation of the Corps of

Mounted Orderlies. He approves of Staff Officers proposed for promotion, decides, in conjunction with district commanders, all questions regarding officers' courses, selects chiefs of division of the General Staff; in short, he nominates the general officers of the district staffs, after conferring with the district commanders.

The departmental chiefs of the General Staff are selected by the War Minister, and nominated, on his recommendation, by an Imperial decree and by a Senatorial ukase. They are charged with the prompt and regular discharge of their work, with the regular supervision of their expenditure, and must make, at least once a year, a minute and detailed inspection of their departments. In addition, the 1st quartermaster-general should have precise information regarding all officers of the staffs, and on all troops that arrive at or leave the capital. The Chief of the General Staff should be kept informed regarding all officers arriving at St. Petersburg. As regards their *personnel*, they have the same privileges as the chief of a district staff. They may give 2 months' leave to field, and 4 months to other officers. They are authorised to replace worn-out articles, provided the value of such does not exceed 1,000 roubles. They sign for the War Minister, with the exception of correspondence addressed to other Ministers or commanders of districts, and for the Chief of the General Staff, with the exception of papers addressed to the Superior Council, or to Ministers. Divisional Chiefs are selected by the Chief of the General Staff, on the recommendation of the chief of the department interested, and are nominated by Imperial decree. Heads of sections are selected by chiefs of department on recommendation by the divisional chiefs, and are also nominated by Imperial decree.—*Précis from La France Militaire.*

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SPAIN.—*The Spanish Army.*—Spain having decided, for budgetary reasons, to only maintain 80,000 men on a peace-footing, now finds herself on the eve of only possessing skeleton units. On the other hand, she risked, by diminishing the number of these units, rendering the mobilisation of her reserves more difficult and of stopping for many years the promotion of her officers, which was already almost at a standstill owing to the reduction of the cadres that the evacuation of her American colonies necessitated. She has adopted a logical solution, which allows her to reconcile financial interests with those of her national defence, as well as with the private interests of her officers. She has retained all her units, but has so distributed her soldiers that certain of those units merely exist as cadres. Thus, in case of necessity, Spain will always have at her disposal a nucleus of forces capable of immediate mobilisation, whilst the cadre units will be utilised for the enrolment of the classes called out.

According to the terms of the circular dealing with these changes, the 56 infantry regiments have drafted their men into the 1st battalions, merely keeping the cadre of the 2nd battalions. The training of all the recruits will be carried out by the officers and non-commissioned officers of these cadres. On completion of their training, the recruits will be passed on to the 1st battalions and posted to companies. In the same way cavalry regiments will only have 3 war squadrons, the 4th squadron merely retaining its cadre and their horses. Recruit training will be carried out by this squadron, which will borrow the necessary horses from the war squadrons, to which it will pass on the recruits when trained. The 4 regiments of the Cavalry Division, who are on the highest effective, are not subject to this measure. They retain their 4 squadrons, and orders will be issued, when necessary for any variation in their effectives. Each of the 13 field



artillery regiments is formed into 2 brigade divisions. In the first 12 regiments the first of these brigade divisions consists of 3 Q.F. batteries, in the remaining regiment it has the same number of 9-cm. batteries. The second brigade division of all the regiments is uniformly composed of two 9-cm. batteries. The *matériel* of the Q.F. batteries, as well as those armed with the 9-cm. guns, consists of 4 guns, 4 ammunition, and 4 battery wagons. The teams are 6 horses for each gun, and 4 horses to each ammunition and battery wagon. The ammunition supply is 134 rounds to each gun, the regimental park having a reserve of 268 per gun, and an ammunition wagon with the necessary team. The batteries of the second brigade division consist of 4 Krupp or Sotomayer guns and 2 ammunition wagons. The garrison parks keep in reserve for each battery 2 ammunition and 2 battery wagons with their teams. Recruits are enrolled in the second brigade division, the batteries of the first providing, of required, the necessary number of non-commissioned officers and horses. When trained, the recruits are passed on to the first brigade division, where they are made familiar with the working of the Q.F. gun, and are trained to the duties of gunners and artificers.

General Linare's circular gives the following details regarding the effectives of each branch of the Service, corps, or department, which will, in future, make up the Spanish Army on a peace footing, viz. :—

	Men.
Royal House ... ..	405
Infantry ... ..	43,705
Cavalry ... ..	12,250
Artillery ... ..	13,142
Engineers ... ..	4,404
Military Administration ... ..	1,460
Medical Service ... ..	881
Topographical Department ... ..	386
Ceuta Volunteer Militia ... ..	178
Militia Company ... ..	90
Military Training Establishments ... ..	608
Sections of the War Department ... ..	319
Orphan College ... ..	52
Mahon Penitentiary ... ..	120
Total ... ..	78,000

The horse effective will be 13,535 saddle horses, of which 2,685 are for officers of all ranks, and 4,174 draught horses or mules. The *personnel* of the 13 regiments of field artillery is fixed at 169 sergeants, 442 corporals, 104 trumpeters, 104 first-class gunners, and 4,288 second-class gunners. These regiments will have, in addition, 1,155 saddle horses, 410 of which are for the officers, and 2,418 draught horses or mules. Each regiment will, in consequence, consist of 384 men, viz. : 13 sergeants, 34 corporals, 8 trumpeters, 8 first-class, and 321 second-class gunners.—*Précis from Revue du Cercle Militaire.*

SWITZERLAND.—*Instruction of Cadres.*—In order to make the cadres efficient, officers and non-commissioned officers are assembled, before each period of recruits' instruction, to go through a preparatory course, called *Kadre-Vorkursus*. In addition, those selected for the commissioned or non-commissioned ranks must, before such promotion, go through a special course either at the school for non-commissioned officers, or else at the officers' preparatory school. Candidates for commissions in the infantry



must also pass through the officers' school of musketry; those for cavalry commissions must go through the cavalry officers' tactical course; those for the artillery must pass the officers' gunnery school, and through the special course for artillery officers; those for the engineers and technical troops must go through a technical course; those for the medical department through a course of military surgery; those for the administrative department through the military administration school. Field officers of artillery, engineers, and commissariat must, in addition, go through a special field officer's course before nomination. Since 1900, all young cavalry officers have gone through a course of patrolling, which extends over 14 days.

The instruction given in all these courses are partly theoretic and partly practical. The preparatory courses for commissions in the engineers last for 8, in the infantry and artillery for 10, and in the cavalry, for 12 months. In addition, the officer instructors supervise the central schools, which are at the present time four in number. The first prepares sub-lieutenants for the duties of lieutenant, with especial regard to those who aspire to become aides-de-camp; the course lasts for 43 days. The second is frequented by captains of all branches of the Service, especially the infantry; the course lasts for 42 days, and serves as a preparatory course for candidates for the rank of field officer in the infantry. The third course is for the majors of all branches of the Service, and lasts for 21 days. The fourth is frequented by recently promoted lieutenant-colonels; it lasts for 28 days, and includes a cadre-ride.

From the above it will be seen with what care Swiss Militia officers are trained to their duties; that they have, besides the usual calling out, to attend manœuvres every second or fourth year, in addition to the recruits' instruction nearly every year, as well as numerous courses and schools of instruction.—*La France Militaire*.

## CORRESPONDENCE.

### A CRITICISM ON LIEUT.-COLONEL MAUDE'S LECTURE, "CONTINENTAL VERSUS SOUTH AFRICAN TACTICS."

*To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.*

SIR,—I hope that I may be permitted to say something in answer to Lieut.-Colonel Maude's undated reply in the *JOURNAL* of February to my criticism on his lecture.

As a year has elapsed since the publication of the lecture, in March, 1902, I may be allowed to recapitulate the points of issue between us. He summed up his lecture in these words:—"Generally, increase of range in the infantry weapon . . . has very materially added to the advantages of the assailant: . . . the argument in favour of training troops to fight . . . in close order has been enormously reinforced."

The points of my criticism, written April, 1902 (*JOURNAL* October, 1902), were:—1. That his theory that close order should still be the formation to be used against modern weapons is opposed to experience. 2. That in my opinion we should first teach soldiers how to make full use of their rifles; until this has been done, we may consider tactical instruction of minor importance, as tactics are only common sense applied to ground.

Since I wrote my criticism, "Infantry Training," the Army Order on Musketry, and "Musketry Regulations" have been published, all of which corroborate the humble opinion I expressed as to the importance of the rifle.

I now understand that Lieut.-Colonel Maude thinks it is "an extraordinary fact that the breechloader did not do equal man-killing work" (compared to the old muzzle-loader). Surely the explanation is simple enough. The muzzle-loader was used at very short ranges by men drilled to use it in close order, against men in close order. On the other hand, the modern breech-loader has been used by only partially trained men, (because until our present training book appeared, the drill of the muzzle-loader days has continued in use) at much longer ranges and generally against men in extended order. Lieut.-Colonel Maude having overlooked these simple facts, is driven for the solution of his difficulty to science and to "the ablest mathematicians in the Army or out of it."

Plevna, Magersfontein, etc., etc., prove that unaimed rifle fire produces at long and at short ranges serious losses among men in close formations, but good-aimed shooting would certainly produce more losses; and since there is no reason to think that targets will always be large, and at short ranges, or fired at under conditions of mist, rain, or darkness, or when soldiers are exhausted, it is only common sense to believe in the importance of training men to be expert in the use of the rifle.

The action between H.M.S. "Shannon and the U.S.S. "Chesapeake" corroborates my argument. Captain Broke, of the "Shannon," carried out in his ship a daily drill with his guns, such as our regulations now order to be carried out daily with the rifle. Quoting our Musketry Regu-

lations :—" Musketry training is on the same footing as all other branches of instruction, but it takes the first place in order of importance." If this order is acted up to, we may expect the British Army to be as successful as H.M.S. "Shannon" was in this well-known naval fight, won in a quarter of an hour by her well-trained shooting seamen.

Lieut.-Colonel Maude suggested that about 7 rounds per minute is the maximum rate of effective fire. Our Firing Exercises state :—"By rapid fire is understood the highest rate of fire, consistent with accuracy, which is obtainable when single-loading. This may be taken to be about 10 rounds a minute. Magazine fire should be at the rate of about 10 to 15 rounds per minute."

He asks what is "a useful effect" of fire at 2,000 yards. I made experiments at this distance on the veld, and found that marksmen firing at the rate of 10 rounds a minute, at a small but good target, placed their bullets sufficiently near it to have been effective on men advancing in extended order. I stood in the open, 80 yards to the flank of the target, and was thus in an excellent position to observe the accuracy of the fire.

He imagines that "they" (close misses in former warfare) "were about as numerous at least" (as those of modern war). I disagree. As the target in old warfare was generally men in close order, errors of direction did not so much signify, since, if one man was missed, the bullet would hit his comrade on his left or right or a rear rank man.

He says, "experience has abundantly proved that the maintenance of 'coolness in action' is far more the consequence of mutual confidence engendered between man and man, and men and leaders, than in the individual skill in the use of the weapon." I think that in action, when men are firing at each other, the knowledge that a man possesses that he is an expert in the use of his rifle, gives him confidence and induces coolness which is absent from the man who knows from experience that he is a bad shot, and therefore unable to stop his opponent or send his bullets near him.

He further states that "accuracy of fire depends on steadiness of hand, eye, and nerves"; but, without efficient musketry instruction, training of the eye, and properly supervised practice, these would be of no avail.

I now begin to see why he assumes that I am a believer in rifle clubs. I do believe in them. I consider them a most excellent institution for those who do not at present care to join the Volunteers. But, when I said, "I can assure Lieut.-Colonel Maude that in the course of a *combat* the accuracy of fire does not fall off to an almost incredible degree in the case of men who are good shots, and who consequently have confidence in their rifles," I was referring to disciplined Regulars, as they are the only troops I have ever had dealings with: but I do not see why this should not hold good with irregulars who are good shots. He spoke about a *combat*, by which term, I understand (I may be wrong), is implied a fight of short duration. I am well aware that physical exhaustion due to cold, sun, hunger, or thirst, consequent upon the duration of a battle, militate against accurate shooting. He now, however, suggests that Spion Kop was a *combat*, and that a *combat* lasts the whole day, 70 guns being employed on one side. Further on in his letters, he says "there has been no battle in the strict sense of the word" (? because we did not see each other's eyes), "only magnified skirmishes in the whole of our campaigns." So Colenso, Pieter's Hill, Diamond Hill, Omdurman, etc., are, according to him, only magnified skirmishes.

I was wrong in suggesting that the Boers fired at buck at 150 yards, in the same way as British sportsmen would; they fire into "the brown" at much longer distances. I cannot, however, see how my argument is affected by the fact that Mausers were only issued just before the war, as I do not consider the Boers were good shots at first, although their judging distance was good.

Why does Lieut.-Colonel Maude give a striking instance in support of my argument, and directly antagonistic to his own, as to the power of the breech-loader when used against men in close order? In the first fight of the French, he quotes, "they killed or wounded one German for every 250 rounds fired." At Wörth, he says, "the average fell to about 450 per Prussian." "Around Metz . . . it got down to 1,000 per Prussian, and subsequently, on the Loire, we find it down to 100,000 at the very least." I thought the Germans changed their drill by using more extended formations after their first battles, and that the French army under Chanzy on the Loire chiefly consisted of hastily-raised levies, who were probably handling a rifle for the first time.

I fear that he is not familiar with the ballistics of a fire-arm, otherwise he would never have given his "sufficiently good rough rule" that "the height of the trajectory (is) rather less than one-third the range." He may be interested to know that the culminating point of our bullet at 500 yards is a 375th part of the range: at 1,000 yards it is a 120th part of the range; at 2,000 yards it is a 30th part.

I gathered from his statements that his knowledge of the rifle was not very exact, so I naturally thought that he did not perhaps know that our rifles were considerably under-sighted at 4,000 to 5,000 feet above sea level. I saw, however, in an article of his last May, in the *United Service Magazine*, after I had posted my letter to you, that he was aware of this fact. In the same article, I was surprised to see, that he assessed the standard of the capabilities of British soldiers as to marksmanship from his experience of Volunteers, and from a branch of the service to whom only 80 rounds per man per annum were allotted.

He still thinks that with disciplined armies the old form of battle (i.e., close order) must still exist. He therefore ignores the chief cause of our 1,500 casualties at Spion Kop, which were chiefly due to our men being so crowded.

He must also forget Magersfontein, where the Highland Brigade suffered 750 casualties, most of which occurred in the first 20 minutes, in the difficult aiming light of dawn, before the quarter columns could extend to intervals of about 8 yards; having obtained this extension, the further casualties throughout the day were comparatively very small. I quote from infantry training, "skirmishing is the all-important formation in warfare against a well-armed enemy." Again, "the paramount importance of concealment must be impressed on all ranks."

Again, he states, "a general of the three arms nowadays has it in his power to produce conditions in the enemy's ranks which will actually paralyse and destroy the results of all musketry training in peace." He refers to artillery overpowering the defence. I ask, was this result obtained by our excellent artillery, both naval and military, at Pieter's Hill, Paardeberg, etc.? Even if artillery could produce this result, which it cannot (unless, perhaps, those on the defence are caught in close order), as war does not only consist of battles in which large masses of artillery take part, musketry training in peace-time is still of the first importance. He forgets that it is the rifle, not the gun, that

decides the issues of war. Did not Moltke say: "Guns will never stop determined infantry"?

Lieut.-Colonel Maude states that "gunners can create the conditions of a London fog, through which all the crack shots of Bisley could do nothing against their targets, anywhere, whenever they choose." He forgets that 95 and 64 guns respectively did not prevent the Boers shooting from their deep narrow trenches at Pieter's Hill and Paardeberg; that our casualties, in spite of these tremendous bombardments, were respectively 1,600 and 1,100; and that artillery fire must cease before the assault is made, when it is the duty of the defenders to re-open fire in the form of our new practice snap-shooting.

He has apparently an altogether erroneous idea as to the effect of modern artillery against the defence, but this is quite excusable in a man who has never witnessed how it can be endured. To quote "Linesman": "It is a terrible thing, modern heavy gun fire, so terrible that its archetype, the thunderstorm, has at last been ousted from its place as a simile of wrath and grandeur: so terrible that it is impossible to despise the human race which numbers men who can endure, ay, and keep their nerve and rage under its appalling visitations."

In conclusion, I quote from Army Order of September, 1902:—"Our soldiers cannot as yet take the fullest advantage of the admirable weapon which has been placed in their hands, or use it with that skill and precision which are so essential to success in war." The Commander-in-Chief in India, remarks:—"We are far from having reached the standard of efficiency to enable us to take the field with the confident knowledge that no enemy we may encounter can surpass us in shooting."

I must express my opinion that the senior officers of our Army who have seen service and witnessed modern fighting in different parts of the world, and have, moreover, personally experienced the effects of modern artillery and rifle fire, know what is necessary for our soldiers' training. Their practical knowledge is of far higher value than the theoretical views of critics who have not had their experience.

I cordially agree with one portion of Lieut.-Colonel Maude's lecture where he says:—"There exists in every community of men a certain section of extremists who seem intellectually incapable of sifting evidence; with them personal impressions count for everything, and their own views always appear to them of surpassing interest to the world at large."

H. DE B. HOVELL, Major,

*2nd Bn. Worcestershire Regiment.*

Bloemfontein,  
April, 1903.

## NAVAL AND MILITARY CALENDAR.

MAY, 1903.

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- 1st (F.) 2nd Bn. Somersetshire Light Infantry arrived at Southampton from South Africa in the "Staffordshire."
- " " 11th Hussars arrived at Queenstown, Ireland, from Egypt in the "Dunera."
- 2nd (Sat.) H.M. the King was present at a great military review at Vincennes, near Paris.
- " " 2nd Bn. Devonshire Regiment } Left South Africa for England  
2nd Bn. Wiltshire Regiment } in the "Plassy."
- 4th (M.) The Somalis attacked an Abyssinian force and were driven off with a loss of 300 killed.
- 6th (W.) H.M.S. "Camperdown" paid off at Chatham.
- " " H.M.S. "Basilisk" paid off at Chatham.
- " " H.M.S. "Thrush" arrived at Sheerness for Cape Town.
- " " H.M.S. "Hawke" commissioned at Chatham for Home Fleet.
- " " Field-Marshal H.R.H. the Duke of Connaught presented their first Colours to the 3rd Bn. Worcestershire Regiment at Tipperary.
- " " 14th Hussars arrived at Southampton from South Africa in the "Dunera."
- 8th (F.) H.R.H. the Prince of Wales unveiled a War Memorial to the Royal Welsh Fusiliers at Wrexham.
- 11th (M.) 1st Bn. Argyll and Sutherland Highlanders left South Africa for England in the "Syria."
- 13th (W.) Launch of first-class battle-ship "Commonwealth" from the Fairfield Yard, Govan-on-Clyde.
- " " H.M. the King presented War Medals to troops at Edinburgh.
- 14th (Th.) Report of the Committee on Army Canteens was issued.
- 18th (M.) A supplementary War Office return on Army Organisation was issued.
- 21st (Th.) 2nd Bn. Devonshire Regiment } Arrived at Southampton from  
2nd Bn. Wiltshire Regiment } South Africa in the "Plassy."
- 26th (T.) Launch of first-class battle-ship "Elsass" from the Schichau Yard, Danzig, for German Navy.
- 30th (Sat.) 1st Bn. Argyll and Sutherland Highlanders arrived at Southampton from South Africa in the "Syria."

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SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid: April, 1903.—"The Pontoon Train during the last Manœuvres in the 5th Region" (continued). "Practical Electrometry" (continued). "Armoured Cement and its Use for Military Purposes" (concluded). "The Conductivity of Electrolites."

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## NOTICES OF BOOKS.

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*Campagne de l'Armée de Réserve en 1800. Passage du Grand St. Bernard—Marengo.* Par le Capitaine DE CUGNAC. Paris: R. Chapelot et Cie., 30, Rue et Passage Dauphine, 1902.

This is another of the series of admirable works now in process of publication by the Historical Section of the French General Staff, to which we have already called attention in a recent number. The last one under review, the "*Campagne de 1793 en Alsace*," dealt with the very foundation work on which the structure of the "*Grande Armée*" was reared. The present one gives us an intermediate stage, in which the chief interest centres on the evolution of its leader.

The popular imagination has been so much attracted by the dramatic incidents of this campaign—the passage of the St. Bernard and the climax of Marengo, that the real magnitude of the task achieved by Napoleon has never received the attention it deserves, especially in this country where, thanks to the special school of strategy in which we have, for the most part, been reared, we have been blinded by the conception of the great flank march itself, and have lost sight of the real point of superlative interest, the genius which overcame the difficulties of execution.

The year 1799 had ended disastrously for the French on all frontiers. They had been beaten out of Italy and back to the Rhine by the Austrians, and the condition of the finances was desperate, but there still remained scattered about the country, engaged in pacifying La Vendée or watching the sea-board a considerable number of fighting men, or at least of men legally liable to become fighting men, to constitute a formidable force if they could be set free from their immediate duties, and money be found to equip and organise them as a field army.

The first mention of the "*Armée de Réserve*" occurs in a letter of the First Consul's, dated 25th January, 1800, but the orders definitely creating it did not issue till the 8th March, and on 14th June the battle of Marengo was won and the campaign practically ended. It is impossible in a brief review to give any conception of the extraordinary amount of work crammed in between these dates, or of the difficulties surmounted. There was nothing approaching the modern General Staff to work out the details of the marches—there existed only what the Germans call the "*Adjutantur*"—and in spite of Berthier's energy and ability in this particular field, this was still in a very elementary condition. Hence the Chief had to intervene in every detail, and only his extraordinary capacity for work, and the intuition which led him always to order the right thing at the right time, explains the ultimate triumph of the French Armies.

Curiously it is his astounding "*industry*" that seems to have impressed posterity the most; and how many generals of moderate ability have dug the grave of their own reputations in seeking to emulate it! They seem to have imagined that, provided they conscientiously spent every available hour in writing interminable memos and interfering with everybody's work, the parallel between themselves and Napoleon would be complete; but, in the absence of the actual text of what Napoleon actually did write, they over-



looked the genius that dictated his writing and the special circumstances of the moment that alone justified and compelled his interference.

It was only the Prussians under the pressure of dire necessity, who detected that in the Emperor there was incarnate a spirit of executive talent such as the world had never seen, or was likely to see again, and the merit of their discovery lay in this—that, seeing the impossibility of creating a Napoleon to order, they so trained and organised their staff in peace-time, that by focussing the collective intelligence and industry of many minds on the essential details of military operations, they ensured that the problems as they reached the supreme head for decision should be so far simplified and reduced that moderate capacity would be able to deal with them.

Given the existing organisation of any great Continental State, then it will be evident from a perusal of these letters and orders, that the work would nowadays be well within their power of execution. Even in England recent events have shown that we could probably deal with an equal situation with ease, for we have the men, the arms, and the certainty of execution resulting from the prevalence of normal conditions of law and order throughout the country. But in 1800, in France these conditions hardly existed; not only was the whole country almost in anarchy, but no one except Napoleon seems to have known where the arms were, or even the men, and when found, it was only his "driving energy" which brought the two together.

There was, of course, the great difficulty common to all countries at the time, of want of good and rapid means of communication, but these were aggravated in France by the dearth of transport animals, and the want of energy and working power in their owners, it was not enough to send orders that stores should be forwarded by relays night and day, it was necessary to send officers to drive them through, or the drivers cut the traces and ran away. Those who have had Indian experience will appreciate the position.

The picture presented by the Army when it reached Villeneuve on the eve of its final start, must have been enough to shake the confidence of the boldest. Half-clad, half-shod, and short of muskets by several thousand stand, it must have seemed impossible that it could be ready at the settled time. But things did turn up at the last moment, and there was time enough to teach the new conscripts how to load and fire in the few days' march to the foot of the pass, though it was necessary to caution battalion commanders to limit very strictly the number of rounds fired, as the supply was still short, and threatened to be precarious throughout.

Of the actual passage of the mountains not much remains to be said—our troops in the Tirah or Chitral would probably have made light of the whole thing—but the story of the resistance of Ford Bard and the unexpected difficulties thus thrown in the way deserve very careful study. All attempts to get wheeled artillery past failed utterly in face of the watchfulness of the garrison, and the advance guard, under Lannes, actually reached and stormed Corea without the aid of a single gun.

After this episode the correspondence grows more fragmentary, and a good deal is coloured by the bombastic style in which the Revolutionary heroes had unfortunately learnt to indulge; but from translations of Austrian statements, which of late have become available, a fairly clear history of the whole may be arrived at. It is, however, a terrible labour for one man to piece the whole together, and we venture to suggest it as an excellent subject for class instruction in military history and strategy, to



take the best existing maps and follow out the day-to-day incidents, discussing the problems as they arise collectively. To go over and study the campaign on the ground would be still better. Only in this way, we take it, can the extraordinary resolution and true greatness of its hero be thoroughly realised; and unless some just measure of his supreme ability be arrived at, all study of his epoch would seem to be both vain and misleading—for in no other way does the gap between conception and execution become evident.

How many shattered reputations in all armies may not be traced to the mistaken idea that imitation of the Napoleonic plans and his style in orders is sufficient to guarantee success!

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*The Lancashire Fusiliers Annual, 1902.*

Like the Oxfordshire Light Infantry and Rifle Brigade, the Lancashire Fusiliers publish an annual record of the doings of the regiment. The present edition is the twelfth publication, and, from the mass of information which it contains, ought to prove an interesting permanent record to all territorially connected with the regiment. Regulars, Militia, and Volunteers have contributed to it, so that it is appropriately representative. It is compiled by Major B. Smyth, Adjutant, Royal Hibernian Military School, Dublin.

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*Napoleon as a General.* By the late Colonel Count YORK VON WARTENBURG. Edited by Major W. H. JAMES. 2 Vols. 8vo. 30s. (Kegan Paul, Trench, Trübner & Co.) London, 1902.

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*Souwarow en Italie.* By E. GACHOT. 8vo. 5s. 8d. (Perrin et Cie.) Paris, 1903.

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*Twenty-second Annual Report of the Geological Survey.* Parts I., II., III., and IV. 1900-01. Demy 4to. (Presented.) Washington, 1902.

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